



Greater Yellowstone Coalition

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December 15, 1999

Mr. Clifford Hawkes
National Park Service
Denver Service Center
12795 West Alameda Parkway
Denver, Colorado 80228

Dear Mr. Hawkes,

Attached are the comments of the Greater Yellowstone Coalition on the draft Environmental Impact Statement for Winter Use in Yellowstone and Grand Teton National Parks and the Rockefeller Parkway. Our proposal, *The Citizens' Solution for Winter Access to Yellowstone*, is supported by fourteen groups representing over 2.5 million Americans. These comments are supported by the Natural Resources Defense Council, The Wilderness Society and the Wyoming Outdoor Council.

The examination of how best to manage winter use in Yellowstone, Grand Teton and the Rockefeller Parkway has been a long time coming. Uses, such as snowmobiling, have grown in an uncontrolled manner for over thirty years with insufficient scrutiny of environmental impacts to the parks or the affect on visitor experience.

As we document in the attached comments, the proposed alternative developed by the Park Service for managing winter use in these three park units does not comply with the laws or regulations governing the national park system. Nor does it assure that winter visitors will experience these parks' unique winter values.

The Greater Yellowstone Coalition, together with more than a dozen conservation organizations representing over 2.5 million Americans, has devised a different vision for the future of winter use in Yellowstone and Grand Teton National Parks. *The Citizens' Solution for Winter Access to Yellowstone* assures safe and affordable access to the parks by all Americans, not just those able to ride a snowmobile. Our solution affords access to the park to equal numbers of visitors while achieving a 90 percent reduction in vehicle use in the park. It also dramatically reduces air, water and noise pollution and impacts to park wildlife.

The Citizens' Solution has earned the support of people from every state in America and from numerous national and regional newspapers. They realize that, in an increasingly crowded world, we need to do everything in our power to free our national parks of the problems that plague our cities: inescapable air and water pollution, artificial noise and traffic congestion.

If we are to ensure that Americans today and in the future will be able to experience Yellowstone and Grand Teton National Parks and their fragile winter values on nature's terms, the Park Service must abandon its preferred alternative and adopt a plan such as *The Citizens' Solution*.

Sincerely,

Mike Clark
Executive Director

**COMMENTS OF The Greater Yellowstone Coalition, Natural Resources Defense Council,
The Wilderness Society and Wyoming Outdoor Council**

on the
WINTER USE PLAN DRAFT EIS for
YELLOWSTONE AND GRAND TETON NATIONAL PARKS AND JOHN D.
ROCKEFELLER JR. MEMORIAL PARKWAY

Hope Sieck, Associate Program Director
December 15, 1999

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Attachments

- Attachment A. The Citizens' Solution for Winter Access to Yellowstone.
- Attachment B. Editorials on Winter Use.
- Attachment C. Map of noise penetration from snowmobiles into Yellowstone National Park. Prepared by the National Parks and Conservation Association.
- Attachment D. Map of noise penetration from snowmobiles into Yellowstone National Park. Prepared by Bluewater Network.

"Transportation is the crosswalk between our mission to preserve precious resources and our desire to provide an opportunity for the public to enjoy these resources in a manner that will leave them unimpaired. Transportation can be the problem or it can be the solution."

-NPS Director Robert Stanton

I. Introduction

The Greater Yellowstone Coalition (GYC) has been significantly and actively involved in Yellowstone, Grand Teton and Rockefeller Parkway winter use issues since the organization's inception in 1983. We have participated in previous planning processes including the 1990 Winter Use Plan, the Greater Yellowstone Coordinating Committee's Winter Use Visitor Management Assessment, and the Winter Road Closure EA. Many of our members visit the parks in winter and participate in a variety of activities including skiing, snowshoeing, viewing wildlife and other park resources, and enjoying the stillness and natural quiet.

After careful examination, GYC has determined that the National Park Service's (NPS) preferred alternative B is inadequate and, if implemented, will not protect park resources as required under guiding legislation and regulation. Furthermore, the proposed "adaptive management" approach found throughout the DEIS would delay important management decisions, put off setting thresholds to measure impacts against, and invariably require additional NEPA processes before any actual management to reduce existing impacts can occur. Instead of putting off important decisions, the parks must set thresholds for impact, devise monitoring methodology to determine impacts and follow through immediately on management measures to eliminate or mitigate impacts.

The National Park Service is facing challenges of increased visitation and potential or existing resource impairment system-wide. In response to these challenges, a series of national parks, including Denali, Grand Canyon, Yosemite, Arches and Zion, have implemented, or are considering implementation of, mass transit systems and/or visitor level limits. In order to accommodate ever-increasing visitor numbers in the next century, parks must identify modes of visitor access which do not endanger precious park natural resources or impair the quality of visitor experience.

The Park Service has fallen short of its guiding laws and regulations in crafting the Winter Use DEIS preferred alternative for Yellowstone and Grand Teton National Parks. These parks deserve an innovative, creative solution for winter visitor access modeled after the state-of-the-art mass transit approaches utilized in other parks. To fulfill the spirit and intent of the laws enabling and directing these and all parks, an access system is necessary which does not damage resources, disturb visitors or stress wildlife. necessary. The necessity of such a shift in winter park management is underscored by current challenges to snowmobiling in national parks, such as the Bluewater Network's petition to ban snowmobiles from all park units and by the ongoing GAO study investigating snowmobile impacts and appropriateness as a use

In an effort to craft a solution which protects the parks' resources while providing visitor access, GYC and other regional and national groups representing over 2.7 million Americans developed *The Citizens' Solution for Winter Access to Yellowstone*. It provides a reasonable and implementable system of winter visitor access to the park which will best protect resources and fulfill agency legal obligations and policy requirements. The Citizens' Solution is supported by a broad cross-section of park users, all of whom believe that winter visitation should be permitted in a manner which least compromises precious park resources.

II. Past Mistakes, Present Problems and Future Opportunities

The history of winter use in Yellowstone is an egregious example of uses and impacts being permitted prior to any NEPA public decision-making process. The absence of impact analysis and public involvement for decades was perpetuated by a series of park superintendents who chose to ignore mounting evidence demonstrating deleterious effects of snowmobiles on park resources. The failure of past leaders to act on available information and to require collection of critical data has left Yellowstone in a difficult situation.

A. History of Snowmobile Policy

Yellowstone first allowed visitors to access the park on motorized oversnow vehicles in 1949. Since then, winter visitation has grown, peaking at 143,000 in the winter of 1993-4. Snowplanes were the first method of oversnow transportation used in the park, until snowcoaches were introduced in 1955. They first entered the park in 1963. In the meantime, elected officials and Chambers of Commerce were calling for the park to plow roads in the winter, to allow for more visitors to enter. The Director of the National Park Service responded to this ongoing pressure in 1967 by stating that the form of transportation in winter should be that which is most appropriate to the park, and that oversnow visitation was the appropriate form of visitation in Yellowstone.

Over the years, snowmobile use has grown unchecked and become the dominant form of oversnow access to the two parks. Snowmobile visit numbers grew from 1,000 machines in 1963-4 to 30,000 machines in 1973-4. In 1972, the National Park Service Regional Director in Denver asked all parks to take public comment to devise winter use plans. Glacier National Park held public hearing and noted a variety of problems caused by snowmobiling, including air and noise pollution, wildlife displacement, and conflicts with other park users. For these reasons, and a strong public sentiment against disrupting the quiet and beauty of Glacier with snowmobiles, the park decided to ban them. Other parks including Yosemite, Sequoia/Kings Canyon and Lassen National Parks responded to public opinion by eliminating snowmobiles in the same period.

The superintendent of Yellowstone, however, did not follow this directive to take public comment and assess the impact of snowmobiles on park resources. Meanwhile, complaints from visitors and park rangers about air and noise pollution grew commonplace and the first studies documenting adverse effects to wildlife from snowmobile use were completed. The Superintendent himself acknowledged that snowmobiles were "a very disturbing factor for those who are attempting to enjoy the peace and quiet of the winter wilderness."

In spite of this statement, he did nothing to control the use of snowmobiles in the park. Upon his retirement, he was awarded the International Snowmobile Industry Association's first International Award of Merit for his "sincere dedication to the improvement of and advancement of snowmobiling in the United States." The next superintendent of Yellowstone allowed further expansion of snowmobiling in the park despite ongoing concerns about air and noise pollution and wildlife impacts. He, too, received the International Award of Merit from the International Snowmobile Industry Association.

The next superintendent served from 1983-1994 and saw winter use double. In 1989 Yellowstone Park published a report which described the lack of ongoing research on current and potential impacts of winter use in the parks. Subsequent documents and plans did little to establish or change policy, address previous concerns, or initiate research into impacts of winter use. In 1995, snowmobile emissions at the West Entrance exceeded Clean Air Act limits. Then Superintendent Barbee left Yellowstone to assume the directorship of all national parks in Alaska. In the late 1990s he and his staff drew up regulations to ban snowmobiles from Denali National Park. When asked in an interview why such action was taken, Barbee replied that "we don't want Denali to become another Yellowstone" (Yochim, 1998).

III. The Citizens' Solution for Winter Access to Yellowstone

The Citizens' Solution was designed around two main assumptions; 1) visitors should be allowed to experience the splendors of the parks in winter; and 2) visitor access should in no way impair, disturb or otherwise detract from those very resources which visitors are traveling to see, hear and experience.

In addition to these assumptions, in order to adhere to the Park Service's legal mandate requiring preservation of natural resources for future, the following principles must guide winter management:

- Air and water quality must be protected and maintained at the highest levels possible.
- The stillness and natural sounds of Yellowstone and Grand Teton in winter must be guarded from degradation.
- Wildlife must be protected during the critical winter season.

The Citizens' Solution for Winter Access to Yellowstone strikes a balance between protecting natural resources and insuring visitor access.

The Citizens' Solution crafts a new solution that protects the parks' natural values, while providing visitors with safe, efficient and affordable access to quality recreational and educational experiences. *The Citizens' Solution* will:

- Create a visitor transportation system that preserves the winter character of the parks.
- In Yellowstone, institute a group travel system of "snowcoach only" access. A snowcoach only system would reduce the number of vehicle miles traveled by 90%. Eliminating individual mechanized vehicles will reduce air and noise pollution and minimize human/wildlife interaction, protecting the health of wildlife and people.
- Close Yellowstone's east entrance road where inappropriate and expensive avalanche control technologies are used to maintain recreational vehicle access.

- In Grand Teton, discontinue the Continental Divide Snowmobile Trail, while allowing continued automobile access.
- Require a winter carrying capacity study for the parks in order to strike a balance between protection of park resources and quality visitor experience.
- Limit off-trail backcountry use by skiers and snowshoers in critical wildlife habitat.
- Encourage further research on the needs of wildlife wintering in Yellowstone and Grand Teton.

A. Components of *The Citizens' Solution*

Access

Americans should have the opportunity to access Yellowstone Park, but winter presents a unique challenge. People who choose to visit Yellowstone in winter do so expressly to enjoy the park in its natural winter state, typified by stillness and quiet. The use of individual snowmobiles destroys the natural winter attributes of the parks. Transportation should be provided which is in harmony with winter in the parks. Plowing the road into the park, as suggested in the preferred alternative, directly conflicts with the visitors' desire to see Yellowstone naturally in winter as it would create high snow berms which would hamper views and prevent the unique oversnow experience Yellowstone offers.

Group transportation which minimizes noise, air pollution, and trip frequency while maximizing educational opportunities makes the most sense for Yellowstone in winter. Group travel offers the best opportunity the Park Service has to protect Yellowstone's resources for future generations while still allowing visitor access in winter. The Citizens' Solution supports the use of snowcoaches as the sole mode of recreational travel on park roads in winter. These vehicles hold 10-15 people and provide opportunities for on-board education by drivers, as well as sharing among families, friends and fellow visitors. Snowcoach routes and timing should be synchronized like municipal transit systems to allow individual trip planning and quiet periods for exploring between stops. Warming huts should be added to the route between West Yellowstone to Old Faithful at selected points to facilitate visitor exploration of geyser basins and other features at snowcoach stops. A transportation alternative which fosters community and education among park visitors while allowing for appreciation of the natural winter state is the most sensible option for these sensitive and unique areas.

Similar transportation alternatives are in place in Denali, and will soon be in place in Grand Canyon, Zion and Yosemite National Parks. The NPS should be a leader in promoting clean, quiet and affordable modes of group transportation which are protective of the natural qualities of the parks. Yellowstone is a natural place to look next for expansion of the alternative transportation program already taking place in the Park Service.

Affordable access is a cornerstone of our national park system. Winter visitation to Yellowstone and Grand Teton, is by its nature, more costly than summer travel. There is room, however, to make snowcoach trips more affordable. Funds to do so may come from savings accrued from altered winter management such as closed fuel dumps and less frequent grooming, the fee user program or other park budget appropriations, or federal and state grants which support cleaner transportation systems.

Economic Opportunities

The economic well-being of gateway communities is tied to the health of the parks. Americans are drawn to the parks in winter by the exceptional experience a winter visit provides. Unfortunately, many visitors have chosen not to return to Yellowstone in winter because of the noxious, loud experience which snowmobile use creates. The Citizens' Solution will provide a balanced experience for visitors by providing them motorized access to the parks in the least polluting, quietest way and presents the opportunity for economic diversification in surrounding communities.

In order to ease the economic transition for business owners in gateway communities, Park Service contracts for snowcoach operations should be offered preferentially to locally owned businesses who have relied on snowmobile business in the parks. Small Business Administration (SBA) loans should be explored and the Park Service should facilitate when possible. The demand to see the parks in winter will not disappear; marketing strategies can be adapted to encourage visitation via snowcoaches just as snowmobile rentals were marketed effectively in the past. The gateway communities have weathered many changes in their economies, and the Citizens' Solution would afford the opportunity for healthy economic diversification in these communities, many of which have lost business from a variety of users as snowmobiles took hold as the dominant use (e.g. Pers. comm., Craig Matthews, owner, Blue Ribbon Flies; Pers. comm., Kelli Criner, owner, Freeheel and Wheel, pers. comm.). The snowmobile business will not disappear; popular snowmobiling areas surround the parks. Indeed, the average visitor to West Yellowstone, MT spends only one day of a multi-day visit snowmobiling inside of the park (Pers. comm., David McCray, owner TwoTop Snowmobiles).

Implementation of the Citizens' Solution will provide a much-needed opportunity for diversification in gateway communities. The foundation of healthy economies in surrounding communities is the presence of healthy parks offering a wholesome experience for all members of the public.

Carrying Capacity, Facilities and Services

Yellowstone in winter cannot support an infinite number of visitors. Attempting to will detrimentally affect the parks' natural resources and strain the existing infrastructure. Winter use has grown exponentially in the past three decades, with little scientific data analyzing its impacts to natural resources. Winter use levels should not exceed the previous six years' average until analyses of carrying capacity are conducted. No expansion of winter services or facilities should take place in the ensuing period. With the implementation of group transportation, some facilities, such as fuel dumps at Lake and Canyon, may no longer be needed and could be phased out.

Roads and area closures

Ongoing scientific studies are assessing the impacts of road grooming on wildlife movement through the parks in order to make any decisions regarding road closures. Further studies, including those involving the closure of roads necessary for collection of control data, are needed. We support the interim use of all currently used roads and areas in the parks pending

results from scientific studies of wildlife use of groomed and un-groomed areas, with the following exceptions:

- The east entrance to the Yellowstone Park should be closed to oversnow vehicles due to the inappropriate use of avalanche control techniques to maintain this corridor for a few motorized recreational vehicle access.
- In Grand Teton National Park, the Continental Divide Snowmobile Trail (CDST) should not travel across National Park Service administered lands.
- The Potholes area of Grand Teton should be closed to motorized use.
- No new permits for snowplanes should be issued and as existing permittees give them up, the permits should be retired.
- No snowmobile use will be permitted in Grand Teton National Park except for administrative use and where necessary to access private residences. In Yellowstone National Park, snowmobiles may only be available for park administrative use.
- Areas of critical winter habitat in the backcountry should be closed, or limited to skiing and snowshoe use on designated trails.

Through *The Citizens' Solution*, we propose a system of winter use that protects natural resources while providing affordable public access to the parks in their most fragile season. Each component of *The Citizens' Solution* was selected with the goal of complying with park laws and regulations and steering the parks back on a course of resource preservation and visitor enjoyment. The components of *The Citizens' Solution* are reflected in the various alternatives within the Draft EIS and adoption would therefore require no additional analysis.

In the following sections on impacts to park resources and visitor experience, the failure of the preferred alternative to comply with law and regulation will be discussed. Then, *The Citizens' Solution* will be shown to provide a means for the parks to meet the spirit and intent of salient laws, regulation and policy.

IV. Snowmobiling Impacts on Park Resources

A. Air Quality

1. Existing Problems and Failure of the Preferred Alternative

The preferred alternative, Alternative B, proposes to establish an advisory committee to phase in and implement emission standards for snowmobiles. Under Alternative B, "strict emissions requirements would be required for all oversnow vehicles" by the winter of 2008-2009. "These requirements would reduce snowmobile emissions by a minimum of 70% of hydrocarbons, 40% of CO and 75% of particulates." (DEIS, Vol.1, p.202).

The failure to act immediately to halt snowmobile emissions violates the parks' duty under the Clean Air Act and National Park Service Management Policy. Snowmobile emissions at levels damaging to public and employee health and degrading to the parks' air quality have been occurring for years. Carbon monoxide levels in the park currently exceed NAAQS and will continue to exceed levels. Nothing in the preferred alternative would immediately halt Clean Air Act NAAQS exceedences. This directly violates NPS responsibility to ensure the quality of Class I areas.

Nearly all snowmobiles are powered by two-stroke engines. These engines create dangerous levels of airborne toxins including nitrogen oxides, carbon monoxide, ozone, particulate matter, aldehydes, 1,3 butadiene, benzenes, and extremely persistent polycyclic aromatic hydrocarbons (PAH). Several of these compounds are listed as "known" or "probable" human carcinogens by EPA. Benzene, for instance, is a "known" human carcinogen. And several aldehydes including butadiene are classified as "probable human carcinogens." All are believed to cause deleterious health effects in humans and animals well short of fatal doses (EPA 1993).

Two-stroke engines also discharge 25-30% of their fuel mixture, unburned, directly into the environment. Unburned fuel contains many toxic compounds including benzene, toluene, xylene and the extremely persistent suspected human carcinogen MTBE. Two-strokes are one of the largest unchecked sources of pollution nationwide. Charles Emmett, an engineer with the California Air Resources Board (CARB), says that snowmobiles are "extremely, extremely dirty compared to anything else ... [s]nowmobiles are the worst there is" (McMillion 1994). Extensive information is available on two-stroke engine emissions and the direct impacts to human health and air quality.

Current air quality degradations within the parks warrant strong action, which is not adequately reflected in the preferred alternative. The use of two-stroke engines, in the form of recreational use of snowmobiles, in national parks violates the NPS mandate to protect parks' natural resources. For good reason, snowmobile use is being examined by the National Park Service system-wide and by the General Accounting Office.

During the winter of 1998-9 Yellowstone saw 63,000 snowmobiles enter the park, with nearly 54,000 visitors traveling on the corridor between West Yellowstone and Old Faithful (Flores and Maniero, 1999).

Snowmobiles are exponentially more polluting than automobiles for several reasons:

1) Every stroke of the piston in a two-stroke engine is a power stroke. Within a fraction of a second, the exhaust is vented and new gas, oil and air are brought in. Because both the exhaust and intake port are open at the same time, 25-30% of the raw fuel and oil is wasted and enters the environment within the exhaust.

2) Every winter in Yellowstone National Park, snowmobiles dump more than 50,000 gallons of unburned fuel into the snowpack. This is the equivalent of five tanker trucks of fuel spilling their loads in the park each winter.

(Sources: Montana Department of Environmental Quality, 220,000 gallons of fuel were sold for snowmobile use within the park in the winter of 1995; Environmental Protection Agency, two stroke engines emit 25-30% of fuel unburned out the tailpipe in exhaust.)

3) One snowmobile emits 225 times more carbon monoxide than an automobile. One snowmobile emits 1000 times more hydrocarbons than an automobile.

(Sources: National Park Service, snowmobile numbers and duration of visit from West Yellowstone to Old Faithful; International Snowmobile Industry Association, emissions levels and horsepower; Environmental Protection Agency, load factor, automobile emissions levels)

4) The highest carbon monoxide levels in the nation were recorded at Yellowstone's West Entrance during winters in the 1990s. The Park Service must pump fresh air into entrance booths to curb employee headaches, dizziness, throat irritation and nausea.

(Source: Montana Department of Environmental Quality; Environmental Protection Agency; National Park Service)

Snowmobiles destroy air quality everywhere they are used. Even a small group of snowmobiles produce extremely high levels of pollution. According to CARB emissions data, one hour on a two-stroke engine used by most snowmobiles and jet skis, produces more smog-forming pollution than a modern car creates in one year.¹ Every weekend in Yellowstone, snowmobiles at Old Faithful alone create more than a year's worth of park-wide automobile pollution.

The Montana Department of Environmental Quality reports that the 1,000 snowmobiles which enter West Yellowstone on a busy day may release "a volume of emissions similar to hydrocarbon emissions of 3,000,000 cars" (Haines 1997). Extrapolating from more conservative CARB data, snowmobiles emitted an estimated total of 13,860,920 pounds of hydrocarbons during the winter of 1997/98 compared to only 203,293 pounds of hydrocarbons emitted by automobiles touring Yellowstone in 1997. Thus, during the 1997 winter season, snowmobiles left the equivalent of 68 years of YNP auto pollution.² Total Comparison: 13,860,920/203,293 = 68 years equivalent.

Dangerous levels of carbon monoxide (CO) and particulate matter (PM) are a primary concern. CO is extremely dangerous to humans (discussed below), and particulate matter is a recently confirmed human carcinogen by the Environmental Protection Agency. Snowmobiles emit dangerously high levels of carbon monoxide. A study conducted for the National Park Service in 1997 concluded that a single snowmobile produces 500-1000 times more carbon monoxide than a 1988 passenger car (Fussell-Snook 1997). Notably, comparisons to a current model-year passenger vehicle would increase this figure significantly.³

¹ Based on current CARB data: (<http://www.arb.ca.gov>); January 5, 1999.

² Snowmobile emissions: [72,834 snowmobiles entered Yellowstone during the winter of 1997/98] x [5 hours average ride] x [216 grams per horsepower-hour of snowmobile hydrocarbon (HC) pollution (CARB)] x [100 average horsepower] x [0.8 load factor] = 6,292,857,600 grams of HC pollution. When converted to pounds, snowmobiles emitted 13,860,920 pounds of HC pollution into Yellowstone National Park during the 1997/98 winter season.

Automobile emissions: [961,409 automobiles entered Yellowstone in 1997 x [120 miles average distance] x [.8 grams per mile of automobile HC emissions] = 92,295,264 grams of HC pollution. When converted to pounds, automobiles emitted 203,293 pounds of HC pollution into Yellowstone National Park in 1997.

³ Some modern cars emit only .12 grams/kW-hr as compared to CARB estimates of 1078 grams/kW-hr for snowmobiles. As a result, some snowmobiles produce almost 9,000 times more carbon monoxide during a given period than a modern car.

Due to the popularity and proliferation of snowmobile use in West Yellowstone, PARK SERVICE conducted air quality studies under various conditions at the West Entrance. The park used stationary and mobile testing apparatus in 1995 and 1996, focusing on carbon monoxide (CO) and particulate matter concentrations at ground level. Preliminary results indicate that CO levels exceed federal and state ambient air quality standards at certain times. In fact, a reading of 36 ppm in 1996 was the highest concentration recorded for CO nationwide, including cities with notoriously high CO levels such as Los Angeles and Denver. Results from both years demonstrate a positive correlation between snowmobile density and high CO levels.

2. Human Health Risks Associated with Carbon Monoxide and NPS Responsibility to Protect Public and Employee Health

The blue haze found along snowmobile corridors, trailheads and gas stations contains not only dangerous levels of airborne toxins, but can lead to the formation of additional ground level ozone from the photochemical reaction of released nitrogen and hydrocarbons. Health risks associated with exposure to smog and nitrogen include respiratory complications such as coughing, chest pain, heart problems, asthma, concentration lapses and shortness of breath. Elderly individuals and children are particularly sensitive to ground level ozone and nitrogen.

In Yellowstone, concern about public health and excessive snowmobile pollution were issues raised in over 1,200 snowmobile complaint letters received by the park in 1993 and 1994. As a result, Yellowstone began to study snowmobile emissions and soon found that CO and PM concentrations were high enough to cause health and air quality concerns in West Yellowstone, along the snowmobile trail to Old Faithful, and in the parking lot at Old Faithful (PARK SERVICE Air Quality Division 1995). In addition to adverse pollution impacts on visitors, Yellowstone has been forced to enclose ranger booths at its West Entrance to protect rangers from dizziness, nausea, fatigue, headaches, and breathing problems. Filtered air is pumped into entrance kiosks where rangers have reported difficulty counting change. Park visitors have reported tasting the visible haze which surrounds busy entrances and trailheads.

Carbon monoxide is particularly dangerous because it binds to the hemoglobin in blood (forming carboxyhemoglobin) and renders hemoglobin incapable of transporting oxygen (Snook-Fussell 1997). Elevated levels of carboxyhemoglobin can cause neural-behavioral effects at lower levels (2-3 percent), headaches and fatigue (10 percent), and respiratory failure and death at higher levels. And the general consensus among medical professionals is that the health risk from CO increases at high altitude -- a risk exacerbated by richer fuel mixtures common at higher elevations. CO is particularly hazardous during pregnancy, and to the elderly, children,

⁴ Federal standards for CO are 35 and 9 parts per million for a one and eight hour average, respectively, 40 CFR § 50.8(a)(1)(2). State standards differ for Montana and Wyoming. In Montana, the CO standards are 23 and 9 ppm for the 1 and 8 hour averages, respectively, while Wyoming's standards are identical to those of the federal government.

and individuals with asthma, anemia or other cardiovascular disease (EPA 1991; 1994).⁵ The National Ambient Air Quality Standards for CO of 35 ppm for 1 hour and 9 ppm for 8 hours were established to keep blood levels of carboxyhemoglobin below 3 percent. Notably, some scientists have criticized these standards because of evidence of adverse health effects even at these levels (Watson 1995, Greek and Dorweiler 1990).

Snowmobilers, rangers and other park visitors are exposed to dangerous levels of CO. In Grand Teton National Park, Fussell-Snook (1997) measured the amount of CO emitted from a snowmobile on a Park trail under steady-state conditions.⁶ An average of 9.9 g/mile (99 g/hr) to 19.9 g/mile (795 g/hr) of CO was emitted by one snowmobile traveling from 10 to 40 mph. By comparison, an automobile emits 0.01 to 0.04 g/mile of CO under steady-state conditions, or approximately 1,000 times less than a snowmobile. The average CO measurements for a single snowmobile, recorded at different speeds and distances (25-125 feet), ranged from 0.5 - 23.1 ppm. The Montana state one-hour human exposure limit for carbon monoxide is 23 ppm.

It is important to reemphasize that these measurements were based on a single snowmobile only, during steady-state conditions. Unfortunately, snowmobiles travel in packs of 2-25 units for sustained periods of time, and often accelerate over hills and banks. It is therefore clear that typical human exposure to CO is of a much greater magnitude, and represents a very significant level of toxic pollution.⁷ The results are particularly alarming for rangers and recreationists at trailheads, gas stations, and park entrances, where one hundred snowmobiles can create the equivalent carbon monoxide of more than 100,000 cars.⁸

As a federal employer, the NPS has the responsibility under OSHA and regulation to protect employee health. The Park Service also must perpetuate conditions in the best interest of public health. The permission of snowmobile use in the parks and concomitant impacts to air quality endanger park visitors with respiratory and other ailments and chemical sensitivities. The Park Service must provide a health environment for visitors; current snowmobile use precludes the parks' ability to ensure a clean, healthy environment for visitors and a healthy workplace for employees, as required by law.

⁵ For a summary of the human health effects of snowmobile pollutants, including carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter, See EPA (1994).

⁶ Snowmobiles emit more pollutants when accelerating. The steady-state conditions in this study, therefore, represent a "best case" emission volume (Fussell-Snook 1997).

⁷ In addition, the impact of CO exposure increases with increasing altitude, especially for unacclimated individuals (National Commission on Air Quality 1980). Thus, because much snowmobile use occurs at higher altitudes, risks to human health are even greater.

⁸ Based on the aforementioned correlation between cars and snowmobiles in terms of carbon monoxide emissions.

3. Legal and Policy Requirements

There is no scientifically legitimate or legally defensible reason to wait another decade to improve public health and air quality within the Class I airsheds of Yellowstone and Grand Teton national parks. The Clean Air Act states that the National Park Service, as a federal land manager, has "an affirmative responsibility to protect air quality related values, including visibility, from the adverse effects of air pollution in areas that are designated as "Class I". There are 48 Class I areas that are part of the National Park System. Congress intended that these areas be afforded the greatest degree of air quality protection and specified that only very small amounts of air quality deterioration from new or modified major stationary sources be permitted. One purpose of this "prevention of Significant Deterioration (PSD)" program is "to preserve, protect, and enhance [emphasis added] the air quality in national parks." (42 U.S.C. §7401 *et seq.*) "These policies require managers to assume an aggressive role in promoting and pursuing measures to safeguard air quality and related values from the adverse impacts of air pollution" (Flores and Maniero, 1999). National Park Service Management Policies are clear that "[I]n cases of doubt as to the impacts of existing or potential air pollution on park resources, the Park Service will err on the side of protecting air quality and related values for future generations." (NPS Air Resource Management Policy).

Exceedences of Clean Air Act standards place a stronger onus on park managers to restore air quality. National Park Service areas that do not meet the National Ambient Air Quality Standards (NAAQS) or whose resources are already being adversely affected by current ambient levels require a greater degree of consideration and scrutiny by NPS managers. Areas that do not meet the NAAQS for any pollutant (of the six criteria pollutants) are designated as non-attainment areas. Section 176 of the Clean Air Act states:

No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an [state] implementation plan... [T]he assurance of conformity to such a plan shall be an affirmative responsibility of the head of such department, agency or instrumentality. (42 U.S.C. 7401 §176)

Furthermore, the Clean Air Act "requires superintendents to take actions consistent with their affirmative responsibilities to protect air quality related values in Class I areas." "Air quality related values refer to elements of a Park environment which are sensitive to air pollution and may include vegetation, visibility, water quality, wildlife..." (NPS Policies at 4:17) When there is a question as to the impacts of existing or potential air pollution on park resources, NPS Policies require the NPS to "err on the side of protecting air quality..." (NPS Policies at 4:17)

NPS Policy seeks to perpetuate the best possible air quality in parks "because of its critical importance to visitor enjoyment, human health, scenic vistas, and the preservation of natural systems and cultural resources" (NPS Policies at 4:17) The NPS is mandated through

both its own 1916 Organic Act (16 U.S.C. § 1), the Clean Air Act (42 U.S.C. § 7401 et seq) and Executive Order 12088, as amended, to protect air quality in National Parks.

This Executive Order requires the head of each executive agency to ensure that "all necessary actions are taken for the prevention, control and abatement of environmental pollution (at § 1-101) to submit a plan for the control of environmental pollution to the OMB annually at § 1-401, and to "ensure that sufficient funds for compliance with applicable pollution control standards are requested in the agency budget." Id at § 1-501.

Our first national park and its magnificent neighbors have seen considerable impact to their air quality and should not serve as a testing ground for as of yet unproven new snowmobile technologies. Promises of future improvements by the snowmobile are not adequate safeguards for managing these parks. Air quality exceedences are documented (MT DEQ, 1998-1999; NPS, 1995-1999; Flores and Maniero, 1999) and will continue to be reported, and deterioration of park air quality will continue, until recreational snowmobile use is removed from the park and a group transportation system using the cleanest oversnow vehicles available, snowcoaches, is implemented.

4. Solutions

The Citizens' Solution proposes a group travel system using snowcoaches only, as proposed in the DEIS' Alternative G. The availability and current use of four-stroke oversnow vehicles in the parks makes any utilization of two-stroke machines indefensible. Furthermore, the existence of and current use of mass transit oversnow vehicles, in the form of snowcoaches, makes continued allowance for individual machines unnecessary. The Park Service nation-wide is seeking opportunities to reduce pollution and lower the numbers of vehicles needed to provide visitor access. Yellowstone is fortunate to have a system of mass transit oversnow access already in place. The use of only snowcoaches would significantly improve air quality (see DEIS impact sections for Alternative G), provide the same number of visitors access, and reduce the number of vehicles and vehicle miles traveled by 90 per cent.

Under the Clean Air Act and NPS policy, the Park Service must mitigate or eliminate impacts to air quality currently arising from snowmobile use in the park. No means currently exist to mitigate these effects. Fortunately, the means to eliminate them do exist. Four-stroke machines for oversnow access are currently used in the park in the form of snowcoaches; this mode of access must replace that of two-stroke motorized access. Snowcoaches accomplish the desired conditions the Park Service seeks in this planning process-- air quality improvement, noise reduction and reduction of vehicle numbers.

Under the Clean Air Act, Organic Act and NPS Management Policy, the excessive pollution of two-stroke engines is clearly prohibited. Fortunately, the parks have a four-stroke mode of access available and in place in the parks: snowcoaches.

B. Noise Pollution and Natural Quiet

1. Existing Problems

The opportunity to experience natural sounds and silence is rare in our modernized world; one of the last refuges to experience natural sounds is in our national parks. Current use of snowmobiles in the parks undermines the opportunity to have natural quiet as a part of the national park experience. Snowmobiles emit extreme levels of noise at higher frequencies than automobiles. This combination makes snowmobile noise quantitatively and qualitatively different from other vehicle use in the parks. The Park Service must do everything it can to reduce noise levels in parks to prevent the intrusion of urban noises into park lands.

In addition to adversely affecting visitor experience, snowmobiles noise, according to the Environmental Protection Agency, also has detrimental impacts on wildlife. Snowmobile noise acts as a physiological stressor producing changes similar to those brought about by exposure to extreme heat, cold, pain, etc. (EPA 1971). The EPA states that:

Clearly, the animals that will be directly affected by noise are those capable of responding to sound energy and especially the animals that rely on auditory signals to find mates, stake out territories, recognize young, detect and locate prey and evade predators. Further, these functions could be critically affected even if the animals appear to be completely adapted to the noise (i.e., they show no behavioral response such as startle or avoidance). Ultimately it does not matter to the animal whether these vital processes are affected through signal-masking, hearing loss, or effects on the neuro-endocrine system. Even though only those animals capable of responding to sound could be directly affected by noise, competition for food and space in an ecological niche appropriate to an animal's needs, results in complex interrelationships among all the animals in an ecosystem. Consequently, even animals that are not responsive to or do not rely on sound signals for important functions could be indirectly affected when noise affects animals at some other point in the ecosystem. The "balance of nature" can be disrupted by disturbing this balance at even one point (EPA, 1971).

Furthermore, the EPA anticipates that the consequences of a loss of hearing ability could include a drastic change in the prey-predator situation. It states:

The animal that depends on its ears to locate prey could starve if auditory acuity decreased, and the animal that depends on hearing to detect and avoid its predators could be killed. Reception of

auditory mating signals could be diminished and affect reproduction. (Masking of these signals by noise in an area could also produce the same effect). Detection of cries of the young by the mother could be hindered, leading to increased rates of infant mortality or decreased survival rates.

Finally, the EPA raises concerns about the findings of changes in the reproductive organs and sexual function of animals exposed to noise. These impacts, according to the EPA, "should be viewed as possible serious threats to the animal's reproductive capacity."

Although Park Service regulations prohibit snowmobiles if they exceed 78 decibels at 50 feet,⁹ 36 C.F.R. §2.18(d)(1), it is not known how carefully or consistently this regulation is enforced. In addition, whether the existing Park Service noise regulations accurately portray the noise generated by snowmobiles is not certain.

In addition, there is no evidence that the Park Service has conducted any studies to determine what impact this level of noise is having on Park wildlife. Even if this regulation was always enforced, this does not mitigate all potential impacts. For example, in Yellowstone National Park snowmobile use is constant, not infrequent. Thus, even at 78 decibels, the continual drone of snowmobile engines may adversely impact the hearing mechanism, behavior, and survival of wildlife.

The DEIS' approach to mitigating snowmobile noise is inadequate in the face of stringent NPS policy regarding natural quiet. The DEIS divides park areas into "foreground", "middleground" and "distant areas" and sets appropriate visitor expectation and sound levels for each. The Parks' rationale for such a system is arbitrary and not adequately supported. It is not in line with existing park policy regarding the value of natural quiet.

2. Policy Requirements and Data Insufficiencies

Natural quiet is also of critical importance in National Parks. Parks "have intangible qualities such as natural quiet, solitude, space, scenery, a sense of history, sounds of nature, and clear night skies that have received congressional recognition and are important components of people's enjoyment of parks." (NPS Management Policies of 1988 (Ch 1:3-4)) Park Service policy is clear:

The National Park Service will strive to preserve the natural quiet and the natural sounds associated with the physical and biological resources of the parks (for example, the sounds of the wind in the trees or of waves breaking on the shore, the howl of the wolf, or the call of the loon.). Activities causing excessive of unnecessary unnatural sounds in and adjacent to parks...will be monitored and

⁹ This noise level is applicable for snowmobiles manufactured after July 1, 1975. Noise levels for snowmobiles manufactured before 1975 are higher. The regulations on snowmobile noise levels, however, appear to conflict with regulations pertaining to audio disturbances which prohibits the operation of a motor vehicle or motorized equipment in a manner which exceeds a noise level of 60 decibels at 50 feet. 36 C.F.R. §2.12(a)(1).

action will be taken to prevent or minimize unnatural sounds that adversely affect park resources or values or visitors' enjoyment of them. (Policy at 4:17)

Natural quiet as a resource, "defined as the natural ambient sound conditions...refers to the absence of mechanical noise, but accepts the 'self-noise' of park visitors. 'Self-noise' is the noise generated by the visitor- the tread of hiking boots on the trail, the creaking packframes, rattle of pots and pans, talking, etc." (NPS Report on Effects of Aircraft Overflights on the National Park System, 1995 (Report to Congress))p.74) "Preserving natural quiet is an integral part of the mission of the NPS. This is confirmed in law, policy, and the beliefs of NPS managers. (Id at p.76) Unnatural sounds must be monitored in and adjacent to parks, and action must be taken to "prevent or minimize unnatural sounds that adversely affect park resources or values or visitors' enjoyment of them." *Id.* (Emphasis added). To achieve this standard, "the operation of motorized equipment or sound devices that create unreasonable audio disturbances will be prohibited. *Id.* (Emphasis added).

Parks and wildernesses offer a variety of unique, pristine sounds not found in most urban or suburban environments. They also offer a complete absence of sounds that are found in such environments. Together, these two conditions provide a very special dimension to a park experience... Quiet itself, in the absence of any discernible source (especially man-made), is an important element of the feeling of solitude...In considering natural quiet as a resource, the ability to hear clearly the delicate and quieter intermittent sounds of nature, the ability to experience interludes of extreme quiet for their own sake, and the opportunity to do so for extended periods of time is what natural quiet is all about. (p.78) (NPS Report on Effects of Aircraft Overflights on the National Park System, 1995 (Report to Congress))

In developing an approach to preserve natural quiet, the NPS outlined several "important facts." The first two are: "1. Natural quiet is a resource for preservation within the NPS mandate; and 2. The human auditory system is an excellent mechanism for determining the presence or absence of natural quiet. ...". (NPS Report on Effects of Aircraft Overflights on the National Park System, 1995-Report to Congress; p.85).

Despite this strong policy guidance and allowance for the human ear to measure natural quiet, the Park Service has failed to collect useful data on noise pollution in the parks. The data presented appears to be erroneous. Table 42 (p. 192, DEIS) estimates snowmobile noise from a group of 10 machines extending only 4500 feet. This data does not account for cumulative noise effects or individual sensitivities to noise beyond decibel recognition (e.g. effects of different frequencies). The DEIS also sets the natural ambient sounds as high as 30dB. This presumption is made in the absence of any real data concerning natural quiet in Yellowstone National Park. It seems likely that the low-end ambient to be protected and restored in winter is closer to 10-15 decibels. The Grand Teton 1996 noise report by Bowlby and Associates appears to have lacked a

systematic approach to define the low-end ambient. Certainly, the methods and equipment to determine low-end ambient ranges are available to the NPS.

Other parks, including Grand Canyon and Everglades, can provide technical guidance and data which the parks can use to design studies appropriate for winter impacts. We encourage the NPS to apply these rich data sources, new technology, and analytical insights to the present Yellowstone analysis of natural quiet. Specifically, we recommend that the Parks conduct 'Percent of Time Audible' studies focusing on snowmobile noise. This type of data is most relevant, as the mere presence of snowmobile noise is the issue, rather than the loudness or proximity of it.

The only existing data on noise pollution in the parks demonstrate that snowmobile noise far exceeds NPS' best guesses, as included in the DEIS. Anecdotal reports document severe degradation of natural quiet up to 20 miles into the backcountry. This penetration distance was clearly not anticipated for by the parks (see Wilderness section), as proposed wilderness was set at one or less miles from the road. Current snowmobile use renders large portions of Yellowstone park unusable by those seeking natural quiet. Yochim (1998) compiled reports of noise penetration up to 15-20 miles into park wilderness. The average distance excluding the 15-20 mile report was about six miles. A recent map (Attachment C, National Parks and Conservation Association, 1999) has shown noise penetration of ten miles into the park. Even with a more conservative estimate of a five mile noise penetration zone (Attachment D, Bluewater Network, 1999), visitors have to go great lengths to experience natural sounds.

3. Solutions

The mode of access utilized by winter visitors must be the most quiet vehicle possible. The Citizens' Solution's proposed snowcoach transit system would eliminate high frequency, loud snowmobile noise. Snowcoaches can be made still quieter by installing muffling devices. Snowcoaches run on alternative power such as electricity should be investigated. The Park Service must commit to the quietest vehicles available. Snowcoaches represent the quietest, currently available motorized access to the parks and numerous possibilities for further noise reduction of snowcoaches exist. Snowcoaches currently can meet current noise standards, and mufflers and other engine types are widely available to upgrade coaches and make them even quieter. Finally, the reduction in overall number of vehicles accomplished by a switch to a mass transit system will result in significant cumulative noise reduction.

C. Water Quality

Snowmobile emissions are deposited directly onto the snowpack of the parks. This snowpack pollution translates directly into pollution of the parks' waters as the snow melts. Snowmobiles each year emit the equivalent of five tanker truck loads onto the snowpack of Yellowstone. The components of snowpack pollution from snowmobile emissions can include toxic compounds such as MTBE (a fuel additive), and polycyclic aromatic hydrocarbons (PAHs) such as benzene, butadiene, xylene, toluene, and formaldehyde. MTBE is a known animal carcinogen and a suspected human carcinogen (Hagemann and Van Mouwerik, 1999). Benzene is a known carcinogen, and formaldehyde and butadiene are classified as probable human carcinogens by EPA (EPA; Adams, 1996). Formaldehyde, benzene and butadiene are thought to

harm humans and animals at levels well below fatal doses, and certain PAHs are toxic to aquatic organisms and cause lesions in fish (Adams, 1996). The threats of PAH-contaminated stream and lake sediments derived from run-off are largely unknown, but some experts suspect significant food-chain interactions (Hagemann and Van Mouwerik, 1999). A recent report by the Park Service summarizes the risks to water quality presented by snowmobile emissions onto snow (Hagemann and VanMouwerik, 1999)

1. Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are by-products of fuel combustion found in high concentrations in unregulated two-stroke emissions. They are particularly hazardous because they are both carcinogenic and mutagenic, and are extremely persistent in the environment. Studies by the Tahoe Regional Planning Agency (1997) have shown that PAHs can remain on the surface of the water, where fish and other species feed on phytoplankton and zooplankton. A nine year follow-up study on the Exxon Valdez spill in Alaska by National Marine Fisheries scientists, to be published in Environmental Toxicology and Chemistry, found that residual oil toxins were not breaking down as rapidly as reported (Heintz et al. 1998). The data, which revealed stunted salmon growth and reproductive problems from PAHs, highlighted the importance of considering the composition of PAHs found in contaminated water. The study also states that previous toxicological studies did not provide sufficient consideration to the persistence of sublethal levels of PAHs, and their effect on long-term species survival and reproduction.

Of further concern, independent scientists and a report funded by the National Marine Manufacturers Association (NMMA) found that PAHs at extremely low levels (parts per trillion) are toxic to zooplankton, and inhibit not only zooplankton reproduction, but also the reproductive success and general growth of fish (Oris et al. 1998, Giesy 1997). The acute toxicity of PAHs is extremely problematic when taken in context with determinations by Dr. John Giesy, a Distinguished Professor of Fisheries and Wildlife at Michigan State University, that natural ultraviolet light can increase the toxicity of PAHs on water surfaces by as much as 50,000 times under field conditions (Giesy 1997).

The findings of these studies also correlate to studies on snowmobile emissions. In a study of snowpack contamination by snowmobiles, for example, Matthew R. Graham of the University of Nevada-Reno found elevated readings of four PAHs -- acenaphthene, acenaphylene, naphthalene and phenanthrene -- in snow samples under field conditions. Graham detected levels of naphthalene, for instance, of up to 12,000 ppb. According to the Occupational Safety and Health Administration (OSHA), the short-term human exposure limit (STEL) for naphthalene is 15,000 ppb. OSHA's Health Hazard Data indicates that "contact may cause skin or eye irritation ... inhalation may cause headache, nausea and perspiration ... [and] ingestion may cause cramps, nausea, vomiting and diarrhea" (OSHA, 1996). The lowest published lethal human oral dose is 50,000 ppb.

Such high concentrations are particularly alarming for fish larvae, zooplankton, and perhaps other marine organisms. During an industry study, toxicologist James Oris of Miami University found that much lower PAH levels (5-70 parts per trillion compared to Graham's detections of 12,000 parts per billion) cause "a significant effect on fish growth ... photo-activated toxicity to fish and zooplankton as well as direct (no-UV) toxicity to

zooplankton." (Oris, et al. 1998) According to John Giesy, only 19 ppb of another PAH compound (anthracene), under relatively low ultraviolet intensity (2,500 uw/cm2 of UV-A), would kill all exposed zooplankton in 30 minutes (Giesy 1997). And the Exxon Valdez study mentioned above concluded that sublethal levels of water contamination (as low as 1.0 ppb) stunted pink salmon growth and caused other chronic problems (Heintz et al. 1998). During this study, scientists showed that weathered oil retains its toxicity with certain compounds, especially PAHs. The report states, "[w]e conclude that water quality standards for TPAH [total PAH concentration] above 1.0 ppb may fail to protect fish embryos" (Heintz et al. 1998).

2. Methyl Tertiary Butyl Ether (MTBE)

Methyl Tertiary Butyl Ether (MTBE) -- a controversial fuel-additive and suspected carcinogen -- is contaminating water supplies nationwide. All 50 states use MTBE as an octane booster (2-3% MTBE), and 20 states are required to have gasoline with at least 11% MTBE. The Oxygenated Fuels Association (OFA) predicts that 70% of fuel sold nationwide will be oxygenated (11-15% MTBE) by the year 2000. Although the additive is commonly regarded as a hazard to drinking water from underground storage tanks, fuel spills and motorized watercraft, snowmobiles are a significant source of MTBE, a chemical with the potential to cause adverse health effects to humans and wildlife within park boundaries.

MTBE is a concern in terms of snowmobiles for two reasons: 1) because snowmobiles spill large quantities of unburned fuel into the environment, up to 15% of which is MTBE; and 2) because snowmobiles produce very high emissions containing carcinogenic MTBE combustion by-products.

Snowmobiles emit large quantities of unburned fuel into the environment because they consume large amounts of fuel in short periods of time. Because 25-30% of every gallon of gasoline consumed by snowmobiles (roughly 220,000 gallons in Yellowstone in 1995) contains up to 15% MTBE, snowmobiles can dump from one-third to three-quarters of a gallon of MTBE directly into the environment every two hours.¹⁰ Although no studies have addressed animal sensitivity (aesthetic) to MTBE, humans are extremely sensitive to the chemical. The Association of California Water Agencies reports that some consumers can detect MTBE in drinking water at 2 ppb. At 15 ppb, humans can consistently smell the chemical in the water.¹¹ Only one-third of a gallon of MTBE is required to bring the drinking water consumed daily by 90,000 people to a contaminant level of 15 ppb. It is therefore safe to assume that small amounts of raw MTBE from snowmobile exhaust leaching into snowpack and watersheds within park boundaries should be considered a threat to the aesthetic values of park water and snow resources, with perhaps more serious implications for wildlife.

¹⁰ Calculation based on average fuel consumption (USEPA), percentage of fuel emitted as raw fuel (25-30%, USEPA), and percentage of oxygenated fuel that is MTBE (11-15%, OFA).

¹¹ "Taste and Odor Properties of MTBE and Implications for Setting a Secondary Maximum Contaminant Level," prepared by Malcolm Pirnie for the Oxygenated Fuels Association, June 26, 1998.

The Environmental Protection Agency acknowledges that the "human health effects associated with breathing or otherwise consuming large amounts of MTBE for short periods of time or smaller amounts of MTBE over long periods of time are not known."¹² Although no data exists on the suspected human health risks of MTBE, EPA confirms that "in many animals, a lifetime exposure to MTBE in air causes cancer." Animals exposed to small amounts to MTBE show kidney damage and other adverse effects on the developing fetus.¹³

The toxic effects of MTBE on micro-organisms, marine life, and vegetation have not been extensively studied. California SB 521 will address concern that accumulating MTBE may adversely affect certain organisms in the food chain. Researchers at UC-Davis have begun studies on MTBE's effect on aquatic biota and other organisms. According to preliminary reports, MTBE is acutely toxic to various aquatic organisms at concentrations as low as 44 parts per billion (ppb), and bacterial assays are most sensitive in terms of toxicity measured at 7.4 ppb over a relatively short 48 hour period.

The combustion by-products and human metabolites of MTBE are also a concern for snowmobilers, other recreationalists, and rangers exposed to snowmobile emissions, and may be a concern for the environment. MTBE reacts with natural oxygen and hydrogen molecules in the air to form tertiary butyl-formate (TBF), an extremely destructive compound to tissues of mucous membranes and the upper respiratory tract. MTBE combustion also increases airborne concentrations of formaldehyde, an EPA-listed "probable" human carcinogen and a confirmed immune system suppressant. Peter Joseph, Professor of Radiologic Physics at the University of Pennsylvania School of Medicine, believes that these by-products of MTBE are responsible for "creating major public health problems, including an explosion in asthma totally beyond anything experienced in human history."¹⁴

EPA also confirms that the human metabolites of MTBE are tertiary-butyl alcohol (TBA) and formaldehyde. TBA is listed as "harmful or fatal if swallowed," and also suppresses the immune system. In Wilmington, North Carolina, residents of a trailer park were awarded nearly \$30 million dollars for medical and compensatory damages from Conoco for MTBE drinking water contamination. Although the gasoline contained only 2% MTBE at the time, the medical expert reported that in every one of 175 patients tested, MTBE detected in the blood-stream was causing significant immune system suppression.¹⁵

¹² Information obtained from EPA's Drinking Water Contaminant Candidate List at <http://www.epa.gov> in June 1998.

¹³ EPA MTBE information obtained from the agency's Drinking Water Contaminant Candidate List (CCL), (<http://www.epa.gov>), June, 1998.

¹⁴ Personal Communication with Mr. Joseph, June, 1998. (Note: These pers. comm. cites are from the Bluewater Network's Petition- refer to the original document for more information on authorship).

¹⁵ Personal Communication with Mr. Joseph, June, 1998.

According to reports, the acute toxicity of MTBE is comparable to the known human carcinogen and reproductive toxin benzene. Dr. Myron Mehlman, an adjunct Professor of Public Health at the Robert Wood Johnson Medical School and editor of *Toxicology and Industrial Health*, believes that research shows that "MTBE is a human carcinogen, causing the same cancers in laboratory animals as benzene, and at the same dosage levels."¹⁶

EPA requires reporting of any benzene spill exceeding one pound due to its highly toxic properties. Most snowmobile models dump a pound of unburned MTBE into the environment every 1-2 hours. Thus, the presence of MTBE in gasoline as a highly water soluble and persistent suspected carcinogen, with projected yet unstudied effects on water and aquatic life, exacerbates the threat of significant air and water emissions from snowmobiles.

Permitting the use of snowmobiles in our National Park System fails to safeguard our most pristine areas from astonishing amounts of water and air pollution, and thereby threatens park resources, wildlife, visitors and employees. Snowmobile use is therefore incompatible with National Park values, as declared by the Organic Act of 1916, and violates the provisions set forth by the Clean Water Act, the Clean Air Act amendments of 1990, and the aforementioned Executive Orders and Policy Acts.

3. Other Contaminants, Resource Impacts and Ecosystem Effects

Although park officials and snowmobile advocates point out that snowmobile emissions are localized to areas where the machines are used, the effects are severe, and far-reaching. For example, increased ground level smog and nitrogen concentrations cause acid rain, acid snow, and water pollution. Of the 220,000 gallons of gasoline and 11,000 gallons of lubrication oil sold for snowmobiling by service stations within Yellowstone National Park alone in 1995, up to 55,000 gallons of fuel and 2,700 gallons of motor oil entered the environment as unburned, raw petrochemical pollution.¹⁷ About 5,000 gallons of gasoline, and 250 quarts of 2-cycle oil was spilled by National Park Service snowmobiles alone. More than 60% of Yellowstone's snowmobile trail network runs along major rivers, lakes and streams.

Toxic raw fuel and air emissions accumulate in the snowpack along rivers, streams and lakes where snowmobile roads are most common. Ingersoll et al. (1997) found increased levels of sulfates and ammonium in Yellowstone's snowpack compared to baseline conditions. Pollutants "locked" in the snowpack are released very rapidly during the first few days of snow melt.

Researchers have found that 80 percent of acid concentrates are released in the first 20 percent of snowmelt, and that this acid pulse is a major cause of death for aquatic insects and amphibians (Rawlins 1993). This acid pulse may also reduce the acid neutralizing capacity of aquatic systems, particularly those found at high elevations which typically are less capable of

¹⁶ Personal Communication with Dr. Mehlman, June, 1998.

¹⁷ Gasoline sales reported by the Montana Department of Environmental Quality in a report by Howard E. Haines. Raw fuel emissions are calculated using EPA data which confirms that 25% of the fuel "consumed" by a two-stroke engine is emitted "out the tailpipe" unburned.

neutralizing acid deposition.¹⁸ In one study, Charette et al. (1990) determined that "during the spring melting, the massive liberation of atmospheric pollutants accumulated in the snow cover is connected to a very important increase of acidity, which may be more than 100 times higher than the usual acidity level in surface water."

As documented by Shaver et al. (1988), the effects of pollutants can be both biological and ecological, and both acute and chronic. Such effects on plants include foliar injury, reduced productivity, tree mortality, decreased growth, altered plant competition, modifications in species diversity, and increased susceptibility to diseases and pests. Alterations to the vegetative community are also likely to result in implications to Park herbivores and other ecosystem components. In addition, ingestion by herbivores of trace elements deposited on leaf surfaces may lead to other impacts to the individual organism and throughout the food chain.

Several studies have determined that the survival and productivity of amphibians is drastically impacted by increasing acidity. Kiesecker (1991), for example, found that 60-100 percent of tiger salamander eggs were dead or unviable in ponds at pH 5.0 or less, 40 percent were dead or unviable at pH levels between 5 and 6, and 20 percent were dead or unviable in water with a pH above 6.0. At pH levels below 6.0, a slower hatching rate, slower growth to maturity, and a decreased ability of tiger salamanders to catch and eat tadpoles was observed. The acidity of water also affected the survival of tiger salamanders. Harte and Hoffman (1989) found that less than half as many tiger salamander embryos survived at about pH 5.6 or less compared to those surviving at about pH 6.1 or greater and that survival of zooplankton, a common food of the tiger salamander, was also drastically affected by increased acidity. Other amphibians, including boreal toads, chorus frogs, and northern leopard frogs also experience significant mortality when water pH is between 4.3 to 4.9 (Corn and Vertucci 1992).

In a study on the impact of two-stroke emissions on fish, Balk et al. (1994) determined that hydrocarbons disrupt normal biological functions (e.g. DNA adduct levels, enzyme activity), including cellular and sub-cellular processes, and physiological functions (e.g. carbohydrate metabolism, immune system). Serious disruption of fish reproduction also seems likely.¹⁹ (See also, Tjarnlund et al. 1995, 1996). Baker and Christensen (1991), for example, found that embryo and fry of rainbow trout have increased mortality at about pH 5.5.

¹⁸ Studies conducted in Yellowstone revealed that "many lakes and streams in Yellowstone are susceptible to acidification by atmospheric deposition" (National Park Service 1983). Similarly, in the Forest Service's Eastside Ecosystem Management Project, it was determined that concentrations of air pollutants in the snowpack "are greatest in Wyoming and in a small area within Montana just west of Yellowstone National Park. Some of the largest concentrations of sulfate, nitrate, and acidity were measured at sites near Yellowstone." (U.S. Forest Service 1996).

¹⁹ Juttner, et al. (1995) determined that the toxicity of water contaminated by a two-stroke engine was far higher than contamination caused by four-stroke engine or a catalyst equipped two-stroke engine. Two-stroke engines also emitted significantly more hydrocarbons and volatile organic compounds into the water than a four-stroke engine (Juttner, et al. 1995a).

Additional evidence of such impacts comes from toxicologist James Oris and his colleagues at Miami University who conducted a study on the effects of hydrocarbon pollution from two-stroke marine engines, the exact same engine used by snowmobiles, on fish growth. The study, funded by the National Marine Manufacturers Association, found fish growth to be decreased by as much as 46% as a result of exposure to two-stroke water pollution. Although the study addressed concern about marine engines, snowmobiles are capable of creating similar levels of water pollution in streams, lakes and rivers due to frozen or trapped hydrocarbon pollution in snowpack and PAH contamination described above.

Snowmobiles discharge of sulfur can acidify park waters, having similar effects on amphibians and other life as acid rain. Like PAHs, sulfate is positively correlated with snowmobile traffic intensity, as documented in a study of high elevation snowpacks in Yellowstone Park and other Rocky Mountain sites (Ingersoll, 1999). Sulfate is poorly absorbed by soil (Campbell et al., 1995), and tends to run off directly with snowmelt into streams and lakes. Sulfate and other industrial pollutants in snowpacks in southern Norway are blamed for acidification of surface waters, and subsequent elimination of trout populations (Hagen and Langeland, 1973). The same study documents severe loss of aquatic invertebrate species diversity, which is impacted by acidification long before effects are apparent as fish mortality. Similarly, Sharpe et al. (1987) documented a strong correlation between snowmelt runoff-induced episodes of stream water acidity, and absence of fish in a Pennsylvania watershed.

Ingersoll (1999) found low levels of pollutants in the actual snowmelt water samples from Yellowstone Park, and reported that the possibility of "localized, episodic acidification of aquatic ecosystems in these high snowmobile-traffic areas may be possible", due to the *ionic pulse* effect in which snowpack pollutants are concentrated in the earliest phase of snowmelt runoff (Campbell et al., 1995; Hagemann and VanMouwerik, 1999; Hagen and Langeland, 1973). The ionic pulse effect is potentially a threat to amphibians as well as native fish populations in the parks, since it may coincide with spring spawning and hatching, when the highly acid-sensitive yolk stage occurs (Hagen and Langeland, 1973). Further research is clearly needed to "prevent degradation of aquatic habitat from pristine condition" and to provide the "continued protection of unaltered habitats" which is known to be necessary for perpetuation of native aquatic species such as Yellowstone cutthroat trout (Varley and Gresswell, 1988).

Ingersoll (1999) concluded that "[c]oncentrations of ammonium and sulfate at the sites in snowpacked roadways between West Yellowstone and Old Faithful were greater than those observed at any of 50 to 60 other snowpack-sampling sites in the Rocky Mountain region and clearly were linked to snowmobile operation" (Ingersoll, 1999). This study, however, only established "important baselines for future evaluations" (Id.). In their snowmobile emissions report to Yellowstone Park managers, Flores and Maniero (1999) suggest there may be unknown synergistic effects on humans from cumulative, simultaneous exposure to various pollutants. For example, lead emissions from lead gasoline powered machines used in the parks in past years may have degraded park water quality and may have had unknown, cumulative effects on water quality and aquatic biota. Such synergistic effects on aquatic ecosystems must be investigated. Decades of snowmobile effects on snowpack and Park waters necessitate further and immediate research which attempts to quantify impacts from degradation of water quality.

This substantial body of research assessing the components of snowmobile pollutant deposition on snowpack and concomitant water quality effects exists, despite the near lack of research from Yellowstone National Park—which receives more snowmobile use than all other national parks combined.

Snowmobile-polluted snow and its effects on wildlife, fish, and other aquatic organisms have not been investigated in Yellowstone, although published accounts elsewhere began at least 24 years ago... This seems to be another topic that should have been researched here long ago, particularly since we probably experience a higher intensity of snowmobile use than anywhere else. (Caslick, J. 1997. Impacts of Winter Recreation on Wildlife in Yellowstone National Park: A Literature Review and Recommendations" Planning Office Files, NPS, YNP.)

The majority of Yellowstone's snowmobile routes are adjacent to waterways. These waters shelter important fish populations, including Yellowstone cutthroat trout (Varley and Gresswell, 1988). The waters of the Parks also provide breeding grounds for amphibians, all of which are extremely sensitive to increased toxicity and water quality degradation. Koch and Peterson (1995) name acidification and environmental contaminants as likely contributors to the worldwide decline of amphibians, paralleled in Yellowstone and Grand Teton. Yet no studies have been completed to assess the impacts of the toxic pulse resulting from polluted snowpack melt on amphibians or other biota in the Parks. Nor have any studies been undertaken in Yellowstone to assess food chain bioaccumulation effects of snowpack pollution.

4. Legal Requirements

Any degradation of park water quality is inconsistent with applicable law and regulation. The parks' waters are governed by state law which affords them high levels of protection. All waters located within national parks are designated as "outstanding resource waters" under Montana law; similar protections exist under Wyoming law. (Montana Code Annotated §75-5-103(20)). These "outstanding resource waters", much like Class 1 airsheds under the Clean Air Act, are to be protected from degradation or deterioration of water quality. "...[C]ertain state waters of such environmental ecological or economic value that the state should prohibit, to the greatest extent practicable, changes to the existing water quality of those waters. Outstanding resource waters must be afforded the greatest protection feasible under state law" (Id at §75-5-315(1)).

5. Solutions

The DEIS preferred alternative will not mitigate for snowmobile effects on Park water quality, ecosystem effects, or health effects. The Citizens' Solution would minimize water quality degradation as snowcoaches operate on four-stroke technology which does not emit unburned fuel and oil into surrounding snow. As stated earlier, snowcoach technology should be improved to include alternative fuels which further minimize emissions.

D. Wildlife Impacts

1. Existing Impacts

Impacts to wildlife from winter recreation have been documented since the onset of snowmobile use in the 1960s (Yochim, 1998). Following a review of all available data on wildlife impacts from winter recreation, Caslick (1997) concluded that "there is now ample documentation to administratively close these thermally-influenced winter habitats, prohibiting winter use by private and commercial snowmachines, skiers, snowshoers, and hikers." Caslick also recommended that the Winter Use EIS "include alternatives of 'no snowmobiling' as well as...consideration of alternative modes of transport for winter visitor enjoyment of park resources." (Caslick, J. 1997, *Impacts of Winter Recreation on Wildlife in Yellowstone National Park: A Literature Review and Recommendations* Planning Office Files, NPS, YNP).

Impacts to wildlife can be both direct and indirect. The grooming of roads to facilitate snowmobile use can also adversely affect wildlife. Direct impacts include the harassment, chasing, and killing of wildlife by snowmobilers. Coyotes, wolves, deer, and other wildlife have been brutally killed as a result of irresponsible and illegal snowmobile use.

Indirect impacts are numerous and exert a considerable impact on wildlife, including birds, large and small mammals, and imperiled species. For many species, including elk, bison, deer, foxes, coyotes, subnivian wildlife (i.e., small rodents who live under the snowpack), swans, and eagles, snowmobile use can result in significant disturbance resulting in changes in movement and distribution patterns, habitat use, population dynamics, and energetics. In winter, the energy balance of an animal is critical to its survival. Thus, any perturbation to the animals, including disturbance by snowmobiles, can drastically impact an animal's energy reserve possibly leading to the animal's death. Collectively these impacts can adversely affect the productivity, viability, and survival of both individual animals and animal populations. Winter is a critical period for wildlife. Winter climate, including snowfall, depending on its severity and duration, can have a substantial regulatory influence on many wildlife species, particularly ungulates. This is one of several natural regulatory controls on the growth of wildlife populations and on the activity and habitat use patterns of individual animals.

Snowmobiling and the grooming of snowmobile roads substantially affects wildlife energetics. For some species which typically demonstrate a flight response to snowmobiles, this increased use of energy is in addition to natural energy limitations during winter. Conversely, animals that utilize snowmobile roads may save energy. This impact, however, is entirely artificial and can disrupt population dynamics, movement and distribution patterns, habitat use, and, particularly in the case of Yellowstone bison, animal survival.

In particular, energy use by animals is of crucial importance in the winter. As winter progresses, many animals experience a negative energy balance, with more energy being used to survive than is being consumed in the form of forage. Natural (i.e., predators, snow) or, artificial (i.e., snowmobiles, hunting) perturbations to an animal's environment or behavior which affect, either negatively or positively, an animal's energy balance or stress level can have a substantial

effect on survival and productivity, and can impair immune function (Dorrance et al. 1973, Greer 1979, Moen 1978, Hudson 1973, Harlow et al 1987).

Snow cover affects an animal's energy balance in several ways. First, snow cover may act as a hindrance to wildlife movement, effectively restricting the amount of habitat available to wildlife in the winter (Formozov 1946, Sweeney and Sweeney 1984). The ability of wildlife to use areas covered with snow depends on variables such as leg length, chest height, foot load, momentum or velocity, body weight, snow density, snow depth, snow hardness, and type of movement (i.e., trotting, walking, running) (Parker et al. 1984, Mattfeld 1973, Telfer and Kelsall 1984). Second, snow cover reduces the availability of forage critical for survival during the winter. (Formozov 1946, Parker et al. 1984). With an increase in energy expenditures caused by moving through snow combined with a decrease in the amount of available forage (Severinghaus 1947, Leopold et al. 1951), a negative energy balance is created, in which more energy is expended than is consumed. As reported by Parker et al., (1984):

Snow cover is a major factor influencing the survival of wintering ungulates because it affects their ability to escape predation, the timing and magnitude of migratory movements, and habitat selection (Edwards 1956, Pruitt 1959, Gilbert et al. 1970, Telfer 1970,78, Coady 1974, Prescott 1974, Lege and Hickey 1977, Harestad 1979). Snow impedes movement, increases energy expenditure, and reduces forage availability. While three basic properties of snow -- depth, density, and hardness -- influence wintering ungulate populations (Coady 1974), snow depth has been considered the most important attribute affecting ungulate movement and mobility (Wallmo and Gill 1971, Hugie 1973, Telfer 1978).

In elk, for example, the energetic implication of travel for a 100 kg elk calf through 58 cm of snow is approximately five times the cost of locomotion without snow (Parker et al., 1984). This increase in energy expenditure as snow depth increases (Mattfeld 1973) may be "the result of a reduction in the ballistic movements of the legs, an increase in the height to which the feet must be lifted (Heinonen et al. 1959), or an increase in the swinging motion of the body (Ramaswamy et al. 1966)." *Id.* Parker et al. (1984) also determined that energy expenditures in elk increased with increasing snow density.

While energy use would be expected to be greater during severe versus mild winters, Hobbs (1989), in his model examining energy use in mule deer, determined that total energy expenditure during a mild winter exceeded predicted expenditure during a severe winter, despite increases in costs of thermoregulation and activity in response to severe weather. As explained by Hobbs, "This seeming paradox occurred because energy intake was greater during a mild winter, and, hence, weight loss was substantially less. Thus, because deer were heavier and because energy expenditure is strongly influenced by body mass, total energy costs were greater during mild winters than severe ones." If this model is accurate, then larger animals, like bison, elk, and other ungulates, would not necessarily benefit energetically from mild winters because of increased energy needs associated with increased body size. Though the total energetic expenditure may be less during severe winters, Hobbs found that energy intake was substantially less and the impacts of disturbance substantially greater during severe winters. Consequently,

the impact of snowmobile use on wildlife is likely to be greater during severe winters, but the impacts are not mitigated simply due to mild winter weather conditions.

While winter climate, particularly snow, has an enormous impact on animal energy expenditures and stress, that impact is exacerbated by snowmobiling, and trail grooming, due to the disturbance they cause to many species of wildlife. Indeed, researchers have suggested that additional human caused stress on wildlife in the winter is undesirable (Dorrance et al., 1973; Greer 1979, Moen 1976), since it may increase energy use and stress resulting in increased mortality, decreased productivity, and changes to behavioral adaptations (Moen 1976, Freddy 1977). The effects of recreation-induced stress, including lower reproductive output (Geist 1978), however, may not be evident immediately, but rather may appear days, weeks, months, or years after disturbances (Gutzwiller 1991). Moreover, recreation-induced stress may exacerbate the effects of disease and competition, and lead to higher mortality well after disturbances occur. *Id.*

In many instances, snowmobiles induce animal flight, causing increased energy expenditures. In Yellowstone, for example, evasive maneuvers in response to snowmobiles have been documented in a number of species, including elk and mule deer. These maneuvers result in increased energy expenditures for the affected wildlife.²⁰ For example, Aune (1981) reported flight distances of 33.8 meters for elk and 28.6 meters for mule deer in response to snowmobiles in Yellowstone. The energy cost estimates calculated for these impacts were 4.9 to 36.0 kcal in elk and 2.0 to 14.7 kcal in mule deer per disturbance (Parker et al., 1984). These energy expenditures are roughly equivalent to the necessary additional consumption of 4.3 - 31.7 grams of dry forage matter by elk and 1.8 - 12.9 grams by mule deer each time a disturbance occurs. *Id.* Severinghaus and Tullar (1978) provide an even more graphic example of the potential implications of energy use on wildlife, and specifically white-tailed deer: they theorize that for white-tailed deer, during a 20-week winter with snowmobile harassment each weekend, "food enough for 40 days of normal living would be wasted just escaping from snowmobiles." (emphasis added).

Similarly, Freddy et al. (1986) documented that mule deer moved 158 meters when fleeing from a single encounter with a snowmobile resulting in energy costs per encounter of 10-22 kcal or 0.4-0.8 percent of the daily metabolizable energy. If disturbed by snowmobiles while grazing, the cost per encounter was 0.6-1 percent of their daily metabolizable energy. If disturbed while lying down, the energy expenditure per encounter increased from 2 to 10-25 kcal due to the flight response exhibited by the deer. Indeed, wildlife disturbance caused by snowmobiles and other forms of recreation, in addition to causing behavioral changes and increased energy use, disrupts normal home ranges and activity patterns (Kopischke 1972, Dorrance et al. 1975), and displaces animals into poorer quality habitat. Such displacement could be equally or more detrimental than increased energetic costs caused by movements (Hobbs 1989), and may result in reduced productivity.

²⁰ Indeed, of all recreational activities studied by Aune (1981), the most significant expenditures of energy created by recreationists occurred "during interaction along the groomed snowmobile trail and when photographers moved up for a closer shot."

Direct impacts, including chasing and harassing wildlife, resulting in animal exhaustion and mortality are also caused by the irresponsible and illegal operation of snowmobiles. (Baldwin 1970, Malaher Undated, Wettersten 1971, Heath 1974). The purposeful pursuit of a wild animal with a snowmobile, which has occurred and continues to occur, may result in death or, at least, will negatively affect the critical energy balance of the animal which, in turn, is likely to lead to death, reproductive failure, or other adverse impacts. Although snowmobiles in National Park units are, in most cases, legally restricted to the designated snowmobile route, illegal trespass into non-designated areas occurs, resulting in greater impacts, including direct harassment of animals and vegetation impacts.

2. Regulatory Requirements to Protect Wildlife

NPS regulations prohibit "disturbing" living wildlife from its "natural state". (36 C.F.R. §2.1(a)(1)(i)). Regulations governing snowmobile use in national parks specifically prohibit such use "except where designated and only when their use is consistent with the park's natural, cultural, scenic and aesthetic values, safety considerations, park management objectives, and will not disturb wildlife or damage park resources." (36 C.F.R. §2.18 (c)) When such damage is known to occur, the Superintendent is authorized to "regulate, restrict, or close a portion or all of a Park area to all public use if such action is necessary to protect the environment or scenic values of the Park, [and to] protect natural resources.", "36 C.F.R. §1.5 9a) (1). The evidence of adverse effects of winter recreation on wildlife, air resources, natural quiet, and water quality demonstrates that the parks have not heeded regulatory guidance to prevent damage to park resources by prohibiting deleterious activities like snowmobiling.

Clearly, current snowmobile use of the park is in direct conflict with the Organic Act, regulations, and NPS policy guidelines requiring protection of wildlife. The preferred alternative and any alternative which allows continued snowmobile use will perpetuate adverse impacts to wildlife, contrary to Park regulatory and statutory obligation.

3. Solutions

The Citizens' Solution would eliminate all snowmobiling and curtail off-trail backcountry use by non-motorized users. Doing so reduces many of the direct and indirect harms to wildlife resulting from winter recreation. Road-grooming would continue under The Citizens' Proposal, although perhaps less frequently and in a different manner. There remain significant questions about the effects of road-grooming on park wildlife, particularly bison, which are discussed below.

E. Bison and Road-Grooming

Unlike Yellowstone's elk and mule deer, the stolid temperament of bison permits their use of groomed roads even in the presence of large numbers of snowmobiles. Moreover, even bison who are initially skittish around snowmobiles quickly become accustomed to the machines (Meagher 1993, Aune 1981), thereby reducing energy loss associated with avoiding snowmobiles.²¹ For these animals, acclimating to snowmobiles is not beneficial since it

²¹ As snowmobile traffic increased, however, both Aune (1981) and Meagher (1993) reported increased bison use of the groomed roads at night to avoid harassment. Aune (1981)

facilitates use of the groomed trail system which, in turn, stimulates bison emigration from the park where most are killed due to unsubstantiated management decisions made by the Montana Department of Livestock.

While some animals may become accustomed to snowmobiles (Meagher 1993; Aune 1981), this does not mean that snowmobile impacts to the species are benign. The decrease in animal response to a particular stimulus over time may be in response to a progressive weakening of an animal's physical condition throughout the winter (Richens and Lavigne 1978, Severinghaus 1947) and/or to preserve critical winter energy stores. Thus, although an animal's physical response to a particular stimulus may decrease in intensity with time, internal or physiological responses (e.g. stress levels, heart rate) may consistently rise as a result of such stimuli (Moen et al., 1982, MacArthur et al. 1979, Moen et al. 1978a, Cherkovick and Tatoyan 1973, Thompson et al. 1968). Such an increase may impair the survival and productivity of an animal.

Thus, even if animals demonstrate no physical response to the presence of snowmobiles, they still may be experiencing adverse effects due to increased stress caused by the machines. In those Parks where snowmobile roads are not groomed, the energetic consequences of a physical or physiological response to snowmobiles is additive to the energetic costs of surviving the winter. In those Parks with a groomed trail system,²² the negative energy costs associated with a physical or physiological response to snowmobiles are likely more than offset through the energy savings associated with the use of groomed roads in those species who utilize the trail system. Therefore, while a groomed road system is inconsistent with promoting the natural regulation of wildlife populations -- a Park Service mandate -- those species that use groomed roads may benefit in some ways from that use, while those that do not use the roads are at a disadvantage from snowmobiles. This, in turn may result in adverse effects to species population dynamics, movements, distribution, and habitat use in other ways.

In Yellowstone, for example, bison use of the energy-efficient groomed roads has reduced the proportion of the bison population succumbing to natural mortality,²³ increased

also noted this same temporal shift in other Yellowstone wildlife. Such reactions are not necessarily evidence of habituation, but rather demonstrate that snowmobiling in Yellowstone is resulting in enormous physiological impacts to Yellowstone wildlife causing drastic and unnatural behavioral adaptations. For a complete discussion of the impacts of snowmobiling and trail grooming on bison in Yellowstone, See, Schubert (1997), "Adverse Effects of Trail Grooming and Snowmobile Use on Winter Use Management in the Greater Yellowstone Area with a Special Emphasis on Yellowstone National Park," which is hereby incorporated by reference.

²² A groomed trail is prepared by trail grooming equipment. However, multiple and repeated snowmobile use of a trail not intentionally groomed to facilitate snowmobile use may cause the same impacts.

²³ The proportional decrease in winter kill is reflected in population and winter kill estimates after the winters of 1981-82, 1988-89, and 1991-92. During the winter of 1981-82, which was relatively mild in regards to both temperature and snow accumulations, 66 and 237

survival and productivity, and provided bison with access to additional or alternative wintering habitat both in and outside of the Park. As a consequence, Yellowstone's bison population may be nearly double the size that would naturally exist if groomed roads were not present. (Meagher et al., 1997). Consequently, the artificiality of the system is resulting in significant and severe impacts to the bison population and Yellowstone's ecology, including the slaughter and shooting of bison outside of Yellowstone's borders, the functional use (i.e., the ability of bison to use the range given their feeding ecology and gregarious behavior) of bison winter and summer range, and adverse impacts to critical winter survival habitats within the geothermal areas in the Park. (Meagher 1993, Meagher et al. 1997, Castlick 1997).

If such a groomed trail system were not available to bison, then winter movements would entail energy costs which are not currently being expended. In Yellowstone elk, for example, Delgiudice et al. (1991) determined through metabolite profiles in snow-urine samples, that elk on Yellowstone's northern range and in the Madison-Firehole area exhibited severe energy deprivation and accelerated degradation of lean body tissue in areas with increased elk density and/or deep snow cover.²⁴ If bison were subject to such energetic costs, then, depending on winter severity, this impact would be reflected in a proportional increase in natural winter kill and a decrease in survival and productivity resulting in a smaller population size. For Yellowstone bison a smaller population size would likely reduce the number and rate of animals moving outside of Yellowstone where they are shot. Indeed, as Meagher (1993) reported, "when winter conditions allowed these and larger aggregations without bison groups either breaking up or making major movements to new ranges, the bison appeared to have little environmental cause to travel."²⁵

winter kill bison carcasses were located in the Pelican and Mary Mountain winter areas, respectively. Under similar winter conditions during the winter of 1988-89, 58 and 232 winter killed bison were found in the two wintering areas. Though the winter kill numbers remained essentially the same, the bison population size increased from 2,000 to 3,000 during that time. During the winter of 1991-92, a winter with a very severe beginning, 53 winter killed bison were found on the Mary Mountain winter areas with other observations indicating minimum winter mortality in other areas. Yet, between 1988-89 and 1991-92, though over 800 bison were slaughtered outside of the Park, the population increased from 3,000 to 3,400. As concluded by Meagher (1993), "The increase of numbers but decrease in mortality under stress conditions indicated the usefulness of bison movement (on groomed roads) in alleviating effective severity of winter conditions."

²⁴ While some elk utilize the groomed snowmobile roads in Yellowstone (Aune 1981), they do not utilize the roads as frequently as bison. Consequently, elk do not experience the same level of energy savings as accrued by bison.

²⁵ Although snowmobile roads may in some instances provide short-term benefits to individual animals by permitting them to access new foraging areas and otherwise decrease the energetic costs of winter travel, even such a benefit is a serious disruption of those animal's natural behaviors and role in the ecosystem. In the case of Yellowstone's bison, for example, even such short-term benefits have resulted in disaster, by increasing the number of bison beyond the level that would exist absent this intrusion into the Park's natural state contributing to the emigration and slaughter of bison beyond Yellowstone borders.

In addition to the energetic impacts of snowmobiling and trail grooming on individual animals and populations, snowmobile use and groomed roads in the Parks also adversely affect the movements, distribution, habitat use, and population dynamics of wildlife.

In Yellowstone, Aune (1981) has reported that heavy snowmobile traffic inhibits free movement of animals across roads to preferred grazing areas and temporarily displaces wildlife from areas immediately adjacent to the roads. Cole (1977) has also noted the displacement of elk along the roads during periods of fairly continuous travel by snowmobiles in the Madison and Firehole River Valleys of Yellowstone.

In 1997, GYC submitted comments on Yellowstone National Park's Temporary Closure of a Winter Road EA. We believe our comments are still relevant today, and want to take this opportunity to reiterate certain points. At that time we stated that we felt that the NPS must gather better information about the impact of winter road grooming on bison and other wildlife. There were, and still are, very serious concerns about the effects of such grooming on bison distribution and populations, and the subsequent treatment of bison that wander outside the park. This relationship can only be documented by stopping the grooming of certain roads within the park. So far, the park has been unwilling to take that step. As the bison of Yellowstone apparently represent one of the only populations that have not been contaminated with bovid genes, their existence in Yellowstone provides the opportunity for understanding wild bison population dynamics on a scale unmatched elsewhere in this country. For this reason alone, the need to determine the impacts of road-grooming on bison cannot be overstated.

In 1997, GYC supported the closing of the Hayden Valley road segment for at least three years. We felt that winter variability demanded that three years, at a minimum, should be planned for closure. We also supported and continue to support the closure of certain other East Side roads that might have the greatest effect on bison movements in order to assess road-grooming impacts.

The draft report completed by Mary Meagher (1993) (discussed above), which was referenced by one sentence in the 1997 EA, and subsequent publications by her, provide very important information on the influence of winter recreation on bison populations and distributions. The use of the groomed roads has led to energy savings by bison, increased bison populations, expanded range-use areas, and altered distributions. As they continue to populate lands on the west side of the park, where they also leave the park, they are slaughtered by the state of Montana. Bison are not responding to natural conditions, but to a landscape manipulated by humans for recreational purposes. The NPS, unfortunately, has not provided any documentation about winter road grooming impacts on bison or other wildlife. Road closures are the only option for fully assessing influences and impacts of recent changes in bison population dynamics caused by road grooming.

Dr. Mary Meagher believes that only the alternative of allowing only the road segment from the south entrance to Old Faithful to be used by oversnow vehicles will result in a bison population that functions according to fluctuations in natural ecological conditions. We are very concerned about the potential for losing this population, and we are looking forward to her

upcoming publications on this issue. At the same time, we strongly urge the NPS to also make it a priority to assess that potential, and to use road closures as an important assessment tool in evaluating road-grooming impacts. Once assessment of the situation is completed, the NPS must halt grooming of park roads if it is shown to be detrimental. The Citizens' Solution is then an interim plan, amendable pending thorough examination and mitigation of the above discussed wildlife issues.

V. User Conflict

In addition to impacts to wildlife, and other Park resources, snowmobile use Yellowstone and Grand Teton is also having a considerable impact on other Park users. Unfortunately, few efforts have been undertaken to ascertain or quantify the impact of snowmobile use on other Park users, including non-motorized users.

In the Greater Yellowstone Coordinating Committee draft report on winter visitor use in the Greater Yellowstone Ecosystem, conflict areas between motorized and non-motorized users both within and outside of the Yellowstone and Grand Teton National Parks are identified (GYCC 1997). This information, in concert with visitor use survey data provided by Littlejohn (1996, 1996a), demonstrates that conflicts between motorized and non-motorized users occur and are critical in influencing public use and enjoyment of our National Parks. For example, in her 1995 winter surveys of Yellowstone and Grand Teton visitors, Littlejohn documented that the noise, pollution, and number of snowmobiles was frequently reported by survey respondents as what they liked least about their experience in Yellowstone and Grand Teton. Similarly, a recent survey in Grand Teton conducted for the Teton County Commission found that 96 percent of survey respondents thought snowmobiles had a negative impact on Grand Teton because of noise, pollution, disturbance to wildlife and habitat, and due to conflicts with skiers. ("Group Discusses Parks' Winter Use," Casper Star Tribune, October 29, 1998).

Opposition to snowmobiles by other Park users was critical in the decisions made by the National Park Service to close Glacier and Lassen Volcanic National Parks to snowmobile use. In Lassen Volcanic National Park, for example, "most skiers who were interviewed indicated that they would rather not have snowmobiles on the same routes, while virtually all snowmobilers indicated that they felt there was no conflict." (September 13, 1985 memorandum from Western Regional Director to National Park Service Director). In Glacier, a briefing statement prepared by the Park Service on snowmobile use indicated that "over 90% of the comments opposed to snowmobile use related that concern to silence, tranquillity, or in other words, aesthetics. Because aesthetics are an emotion, a feeling, it is impossible to quantify. However, it is a very valid concern, and the National Parks represent, above all other values, an emotion, a feeling, which Americans can obtain only in a handful of other natural scenic places."

Park Service regulations/policies specify that recreational use of parks will be managed "so as to protect park resources, provide for public enjoyment, promote public safety, and minimize conflicts with other visitor activities and park users." (USD 1988 at 8:2. Recreational activities which cause "unacceptable impacts on visitor enjoyment due to interference or conflict with other visitor use activities" are prohibited in National Parks. Id. at 8:3. Specifically, National Park snowmobile policy dictates that snowmobile use may be permitted in National

Parks only on designated routes and water surfaces "in locations where there will be no significant adverse impacts on the park's natural, cultural, or scenic resources and values and in consideration of other visitor uses." *Id.* at 8:5. Snowmobile use is inherently inconsistent with this regulation and policy.

The use of snowmobiles by some park visitors causes adverse effects to other users by virtue of air pollution, noise, crowding and commotion created by snowmobiles. The parks have received numerous complaints on this matter through the years. In order to address this important issue of quality of visitor experience, John Sacklin, Yellowstone Park Chief Planner, specified three alternatives representing "a good range of solutions to the winter visitor use management issues in Yellowstone National Park." The first was to "[l]imit motorized winter oversnow access to snowcoaches only. Restrict private snowcoaches". He explained the rationale behind such an alternative: "We would return to the fundamental reasons why people come to Yellowstone in winter: to enjoy and experience the spectacular scenery, wildlife, thermal features, and solitude. The means of accessing these features would no longer overwhelm the experience... Nearly all conflicts between users would be eliminated." He went on to state that merely limiting numbers of visitors and requiring them to be in tours would result in "most" user conflicts to remain. (John A. Sacklin to Superintendent, Sept. 19, 1995. In Planning Office Files, File: "Yellowstone Alternatives", NPS, YNP, WY).

The preferred alternative would not resolve all visitor conflict, as some visitors would still be permitted to use snowmobiles—a form of access which is inherently disruptive to other visitors due to high levels of noise and noxious air pollution. Testimony at the public hearings attested to the fact that many winter visitors refuse to return to the parks because of the impacts of snowmobile use. Visitors with respiratory or other health problems would be advised not to visit the parks under current or proposed conditions. Those desiring to experience the natural sounds of the parks in winter find little respite from snowmobile noise.

In order to rectify these visitor conflicts, the Park Service must implement an alternative that ensures that access to the park does not detract from other visitors' experiences. The only proposed alternative that accomplishes this and which would result in greatest protection of resources is Alternative G, the mass transit, snowcoach-only proposal echoed by the Citizens' Solution and aptly described by John Sacklin as the best approach to minimize user conflicts.

VI. The Legal and Policy Framework for the Preeminent Park Responsibility: Protection of Resources

Yellowstone National Park must comply with the Organic Act, Yellowstone Act, NPS Management Policy and Executive Orders 11644 and 11989. Current park policy of allowing snowmobile use runs counter to existing laws and regulation. The purpose of the National Park System is clear: to protect park resources.

A. The Organic Act

Upon Yellowstone's creation in 1872, Congress declared it to be "a public park or pleasuring ground for the benefit and enjoyment of the people." (16 U.S.C. §21). Such public benefits were not without limits, as Congress directed the Secretary to make regulations providing for "the

preservation, from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonders, within the parks, and their retention in their natural condition." *Id.* at §22.

The National Park Service Organic Act, passed in 1916, (16 U.S.C. §1 et seq) sets forth the purpose of the NPS as "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The intent of Congress was to preserve the scenery, natural objects and wildlife of the National Parks. (The legislative history of the Organic Act provides additional support for the preservation mandate. In a House Report on the Act, for example, the overriding purpose of the bill was stated as to preserve "nature as it exists." (H. Rep. No. 700, 64th Congress, 1st Sess. 3 (1916)).

In subsequent amendments to the Organic Act, Congress reemphasized the national significance and importance of National Parks and clarified the management guidance for NPS units. Specifically, in 1970, Congress declared that NPS units shall be administered as called for in a Parks' enabling legislation or other applicable authorities, including, but not limited to the Organic Act. Furthermore, in the 1978 Redwoods amendments, Congress stated that "the authorization of activities (in National Parks)... shall not be exercised in derogation of the values and purposes for which these various areas have been established except as may have been or shall be directly and specifically provided by Congress. (16 U.S.C. §1a-1). Parks, in other words are not to be treated like national playgrounds, but, rather, Congress intended preservation of Park resources to be paramount, with public use regulated in a manner which retains the natural, undisturbed, character of the Park.

Court decisions have reinforced the Park Service's affirmative duty under the Organic Act to protect park resources above visitor enjoyment. There can be no legitimate dispute that the Park Service has a statutory mandate to adopt rules which "best achieve the Organic Act's mandate," including rules to prohibit snowmobiling if that activity is adversely affecting park resources. *National Wildlife Fed. v. National Park Service*, 669 F. Supp. 384, 391 (D. Wyo. 1987) (citing cases). In fact, a long line of case law has made it clear that the Park Service must regulate public use of the parks in order to promote preservation objectives. See, e.g., *Michigan United Conservation Clubs v. Lujan*, 949 F.2d 202 (6th Cir. 1991); *Mausolf v. Babbitt*, 125 F.3d 661 (8th Cir. 1997); *Organized Fisherman of Florida v. Hodel*, 775 F.2d 1544 (11th Cir. 1985); *National Rifle Ass'n ("NRA") v. Potter*, 628 F. Supp. 903 (D.D.C. 1986).

As Congress has explained, "[t]he Secretary has an absolute duty, which is not to be compromised, to fulfill the mandate of the [Organic] Act to take whatever actions and seek whatever relief as will safeguard the units of the National Park System." Senate Rep. No. 528, 95th Cong. 1st Sess. 21 (1977) (emphasis added). Thus, for example, in *Potter*, the Park Service concluded that its long-standing authorization of hunting was inconsistent with the Service's preservation mandate, and prohibited hunting in the parks unless Congress required it. 628 F. Supp. at 906. The National Rifle Association (NRA) challenged this regulatory shift, arguing that each park should be permitted to determine whether to permit hunting. *Id.* at 907. The Park Service in turn argued that its philosophy "has always been exclusively protectionist," and that the amendments to the Organic Act were a "pointed [] reminder" to the Park Service to pursue that mission. *Id.* (emphasis added). The court agreed, finding that the Park Service's emphasis

on preservation was entirely appropriate and consistent with Congressional intent. *Id.* at 912; see also *Michigan United Conservation Clubs*, 949 F.2d at 207 ("Notwithstanding that the goals of user enjoyment and natural preservation may sometimes conflict, the Park Service may rationally conclude, in light of the Organic Act and its amendments, that its primary management function . . . is preservation unless Congress has declared otherwise.")

Similarly, given the documented adverse impacts of snowmobiles, a prohibition on such use in the National Parks would be entirely consistent with the Park Service's preservation mandate. Just as the Park Service prohibited hunting in order to comply with Congress's intent that these areas be protected, so must the Park Service prohibit snowmobiling in order to preserve the Parks and continue to fulfill its responsibilities under the Organic Act.

Indeed, Voyageurs National Park has already taken the first step, and thereby demonstrated the appropriateness and legality of such restrictions. See *Mausolf v. Babbitt*, 125 F.3d 661, 667 (8th Cir. 1997). In *Mausolf*, snowmobiling interests sued the Park Service for limiting the areas in the park available to snowmobiles. Although, unlike most other parks, Voyageurs has specific authorizing legislation concerning snowmobiles, see 16 U.S.C. § 160h, the Court of Appeals for the Eighth Circuit upheld the limitations, explaining that the agency "enjoys broad discretion in carrying out the mandates of its governing statutes." *Id.* In addition, the Court explained that the Park Service's actions support "specific regulatory objectives such as protection of environmental or scenic values [and] protection of natural or cultural resources." *Id.* at 669 (emphasis added). A nationwide prohibition on all snowmobiling and trail grooming in the parks would also be fully justified under the Park Service's governing statutes and regulations. See also *Northwest Motorcycle Ass'n v. Department of Agriculture*, 18 F.3d 1468 (9th Cir. 1994) (upholding Forest Service's limitation on certain off-road-vehicle use).

Moreover, given the adverse impacts of snowmobiling, only by prohibiting these activities can the Park Service adhere to its guiding statutes and regulations. Indeed, the agency has recognized that "the management and administration of park areas must be in accordance with both the general laws relating to the National Park System and the more specific laws relating to the authorization and administration of a particular park unit." 48 Fed. Reg. 30252 (June 30, 1983).

As previously stated, Park Service policy (USDI 1988) also supports a ban on snowmobile use in National Parks.²⁶ This policy prohibits activities which "would involve or result in inconsistency with the park's enabling legislation...derogation of the values or purposes for which the park was established ... (or) unacceptable impacts on park resources or natural processes ..." (emphasis added). An impact is deemed "unacceptable" if it will impair "physical resources, such as wildlife and geologic features, and intangible values, such as scenic vistas and solitude." *Id.* at 1:3. Moreover, Park Service regulations prohibit snowmobiling if such use will "disturb wildlife or damage park resources." 36 C.F.R. §2.18(c). As documented earlier,

²⁶ Park policy "originates in law" and is "based on the Constitution, public laws, proclamations, executive orders, rules and regulations, and directives..." (USDI 1988). Adherence to Park Service policies is "mandated" unless "waived or modified by an appropriate authority." *Id.*

snowmobile use in National Parks clearly meets and, indeed, exceeds these criteria, thus mandating that the Park Service either "mitigate the impacts" or "eliminate the activity." *Id.* at 8:1.

Prohibiting snowmobiling would also be entirely consistent with the approach federal agencies have taken in recent years to handle similar problems in the National Parks. For example, the Departments of Interior and Transportation recently announced plans to curtail the degradation caused by too many cars in certain National Parks, such as by announcing that, in order to "preserve and protect" the Grand Canyon "for future generations," the federal government will "greatly restrict automobile use," as well as diesel buses, diesel and steam locomotives and outboard engines on river rafts. 61 Fed. Reg. 69,308 (Dec. 31, 1996). Similarly, the government has recently taken action to curtail the air traffic over Grand Canyon, recognizing that permitting these flights conflicts with the Park Service's duty to "preserve the natural environment." See 62 Fed. Reg. 1795, 1796 (Jan. 13, 1997). All the reasons that support these regulatory initiatives -- air and water pollution, noise abatement, wildlife protection, conflicts with other users, public safety -- fully apply to snowmobile use and trail grooming.

Finally, in addition to the repeated indications from Congress, the Courts, and from the Park Service itself that, in managing the National Parks, the preservation mandate should be the agency's highest priority, the American people themselves have recently made it clear that, in their view, the preservation of our National Parks must continue to be the paramount management objective of the Park Service. In a recent survey by the National Parks and Conservation Association, Americans rated the preservation of the National Parks' air and water quality, wildlife habitat, and natural ecosystems as *immensely more important* than utilization of the parks for recreation and tourism. Darla S. DeRuiter and Glenn E. Haas, *National Public Opinion Survey on the National Park System, Executive Summary Report* at 12 (Attachment 3); see also USA Today, February 19, 1998 ("For Parks' Sake, Enact Ban") (Attachment 4). Moreover, almost 70% believed the parks should be managed for future generations rather than present use. *Id.* at 13. In sum, then, prohibiting snowmobiles would be consistent with the long-standing mission of the Park Service, recent initiatives of this Administration, and the will of the American people.

B. *SUWA v. Dabney*: Mode of Access vs. Recreational Vehicle Use

The framework for the entire debate about winter use in the parks deserves clarification. The purpose of winter access to the parks is to provide visitors the opportunity to see and experience the sights and sounds of the parks. The mode of access utilized to transport visitors into the parks must be that mode least damaging to park resources and that which least degrades the experiences of other visitors. Mode of access must never be confused with a form of recreation. Once in the park, many forms of recreation are permitted, while many have been limited and still others disallowed in order to protect park resources. Snowmobiling as a form of recreation is obviously inappropriate for use in the parks for all of the reasons stated herein and references cited. Snowmobiles as a mode of visitor access to the park are similarly inappropriate and furthermore, no longer necessary as less damaging, mass transit oversnow vehicles are available and in use.

Yellowstone's first snowmobile 'policy', drafted in the early 1970s, stated that:

"Snowmobiling, per se, has no place in any natural area of the National Park System". Superintendent Anderson and his staff went on to say that snowmobiling on road surfaces are appropriate, as automobiles are in summer. Finally, the policy stated that the purpose of allowing snowmobiles "to enter Yellowstone is to provide an opportunity for winter visitors to see, and enjoy, the many wonderful natural features and wildlife that are present in the Park." (Yochim, 1998, citing Harold J. Estey to Robert B. Ranck, Dec. 20, 1974. In Box W-129, File W42: "Special Regulations, 1973-5", YNP Archives, WY).

The District Court of Utah recently clarified that the Park Service is not in the business to provide recreational opportunities: protection of the resource comes first and all visitor access must be in harmony with preservation. (*Southern Utah Wilderness Alliance v. Dabney* (1998 WL 703956 (D. Utah)). At issue was the 'right' of four-wheel drive enthusiasts to recreate in sensitive riparian areas in Canyonlands National Park. The Court based its decision to deny continued access on the Organic Act.

The relevant provision of the Organic Act provides that the Park Service is to "regulate the use of" national parks by means that conform to their "fundamental purpose", namely: "to conserve the scenery and natural historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations". (Organic Act (16 U.S.C. § 1a-1)).

A provision added in 1978 prohibits the authorization of activities that derogate park values: The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress. (Organic Act (16 U.S.C. § 1a-1) as amended by the 1978 "Redwoods Amendments").

In *Southern Utah Wilderness Alliance v. Dabney*, the Park Service argued "that they authorize a balancing between competing mandates of resource conservation and visitor enjoyment." The Court reminded the agency that "...the Park Service's mandate is to permit forms of enjoyment and access that are consistent with preservation and inconsistent with significant, permanent impairment." In a curt assessment of the motorized users' powerful lobby, the Court said "the Park Service noted 'the proposal to close any road has touched a nerve in the four-wheel-drive community.'" The Court, however, was not sympathetic to the Park Service's attempts to mollify ORV user groups at the expense of law and regulation.

The Court went on to clarify the oft-cited Organic Act notion of "visitor enjoyment"; user groups attempt to broaden the concept of "visitor enjoyment" to denote a right to recreate in or access the parks in any way seen fit. The Court disagreed. "[V]isitor enjoyment" as used in the statute refers to visitor enjoyment of park scenery, wildlife, and natural and historic objects that are to be preserved. As used in this sense, visitor enjoyment does not refer to visitor enjoyment of outdoor recreational activities. Opportunities for outdoor recreation are provided on lands managed by the Bureau of Land Management and the Forest Service....[G]iven...the availability of less-invasive forms of access, permanent impairment...in order to permit the continued use [of

four wheel drive vehicles in Salt Creek Canyon] cannot be reconciled with the Organic Act's overarching goal of resource protection."

The court went on to state that "Although this Court is not free to ignore the legislative mandates it is charged with applying, this Court has much sympathy for the elderly, disabled and others whose physical condition will not permit them to hike to Angel Arch." In this case, the Court prohibited all motorized access to prevent impairment of natural resources. In Yellowstone, the Citizens' Solution seeks merely to replace one type of access with another, which will in fact 'broaden access while protecting resources. Snowcoaches provide access for all classes of people, and currently are used largely by the elderly and families with children. Snowmobiles, on the other hand, do not provide for such broad access; the majority of snowmobile riders are adults, mainly adult males.

The Citizens' Solution, in firmly setting visitor access in line with resource protection, fulfills the intention of the Organic Act. The Park Service Preferred Alternative is inconsistent with the Court's ruling in *SUWA v. Canyonlands*. Adoption of the Citizens' Solution would allow the Park Service to comply with the spirit and intent of its enabling statute, the Organic Act.

C. Regulations

NPS regulations prohibit "disturbing" living wildlife from its "natural state". (36 C.F.R. §2.1(a)(1)(i)). Regulations governing snowmobile use in national parks specifically prohibit such use "except where designated and only when their use is consistent with the park's natural, cultural, scenic and aesthetic values, safety considerations, park management objectives, and will not disturb wildlife or damage park resources." (36 C.F.R. §2.18 (c)). When such damage is known to occur, the Superintendent is authorized to "regulate, restrict, or close a portion or all of a Park area to all public use if such action is necessary to protect the environment or scenic values of the Park, [and to] protect natural resources...," (36 C.F.R. §1.5 9a) (1). The evidence of adverse effects of winter recreation on wildlife, air resources, natural quiet, and water quality demonstrates that the parks have not heeded regulatory guidance to prevent damage to park resources by prohibiting deleterious activities like snowmobiling.

Clearly, current snowmobile use of the park is in direct conflict with the Organic Act, regulations, and NPS policy guidelines. NPS Management Policy (USDI 1988) prohibits activities which "would involve or result in inconsistency with the park's enabling legislation...derogation of the values or purposes for which the park was established...([or] unacceptable impacts on park resources or natural processes..." (Policies at 8:3).

The stipulation in regulation to disallow disturbance of wildlife is coupled with Organic Act language to prevent impairment. Together, these affirmatively provide park resources with the utmost protection from disturbance and degradation. Whether an impact is determined to be unacceptable is based on whether it will "impair" the scenery, natural and historic objects, or wildlife of a National Park. The NPS interprets impairment to apply to "both physical resources, such as wildlife and geologic features, and intangible values, such as scenic vistas and solitude". (Policies at 1:3). A determination of "impairment" is based on the spatial and temporal extent of the impacts, the resources being impacted and their ability to adjust to those impacts, the

relations of the impacted resources to other park resources, and the cumulative as well as the individual effects." (Policies at 1:3). Under circumstances of impairment, the NPS must either "mitigate the impacts" or "eliminate the activity" (Policies at 8:1).

D. Executive Orders 11644 and 11989, Regulations and Case Law

Executive Order (EO) 11644 issued in 1972 was intended to provide a "unified Federal policy" for the use of off-road recreational vehicles (ORVs) on public lands. (Executive Order 11644, 37 Fed. Reg. 2877 (1972) reprinted in 42 U.S.C. §4321).

To accomplish these goals, the Executive Order directs agency officials to specify, through regulation, the areas and trails on public lands on which ORV use will be permitted. Those areas where ORV use is permitted will be based on, among other things, "the protection of the resources of the public lands," *Id.* at §3(a), and shall "be located to minimize harassment of wildlife or significant disruption of wildlife habitats." *Id.* at §3 (a) (2). Within national parks, such trails shall only be designated "if the respective agency head determines that off-road vehicle use in such locations will not adversely affect their natural, aesthetic, or scenic values." *Id.* at §4. The EO also requires agencies to establish a mechanism to monitor ORV use and impacts and to respond appropriately to such information. *Id.* at §8.

In May of 1974, Yellowstone National Park designated trails upon which snowmobile use was permitted (39 Fed. Reg. 16151). The designated trails, the selection of which was allegedly "guided by the criteria in sections 3 and 4 of EO 11644" consisted of nearly all of the unplowed roadways.

In 1977, EO 11644 was amended by EO 11989. The amendment authorized "the respective agency head..., whenever he determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat..., [to] immediately close such areas or trails to the type of off-road vehicle causing such effects, until...such adverse effects have been eliminated and...measures have been implemented to prevent future recurrence." EO 11989 42 Fed. Reg. 26959(1977) reprinted in 42 U.S.C. §4321. This closure authority must be invoked when the agency head has determined that ORV use may or will cause adverse environmental impacts.

In response to the original EO, in 1974, the Park Service issued a rule prohibiting snowmobiling in the National Parks, absent special regulation. 36 C.F.R. § 2.34 (1974). In 1979, the agency delineated the standard which governs such special regulations, determining that snowmobiling must be prohibited unless such use is "consistent with the park's natural, cultural, scenic and aesthetic values, safety considerations, park management, and will not disturb the wildlife or damage other park resources." 44 Fed. Reg. 47,412, 47,414 (1979) (emphasis added); see also 48 Fed. Reg. 30252 (1983) (reaffirming this standard); 36 C.F.R. § 2.18 (current codification of standard).

At the same time the Park Service issued these special regulations in 1979 to comply with the EO, it exempted snowmobile use on top of paved roads from the provisions of the EO. That is, despite admitting that the EO applied to snowmobile use in its 1974 rule, the Park Service

summarily and inexplicably announced that the EO only applied where snowmobiling occurs in areas other than directly on top of existing roads used by motor vehicles during other seasons. This change in Park Service policy, which asserts that snowmobiles used on packed snow above existing roads are not considered to be off-road vehicles, is not consistent with the EO, since the EO was implemented to address off-road vehicle use on public lands without regard to where the off-road vehicles were used. Nonetheless, in issuing the 1979 rule, the Park Service continued to recognize that it cannot permit snowmobiling in any areas where this activity would conflict with the agency's overall mandate.

Even where such use is consistent with Park Service regulations, the Park Service determined that, given the inevitable adverse impacts of these machines and the trail grooming required to accommodate them, if "equally desirable [snowmobiling] opportunities exist on adjacent lands," then "snowmobile use is more appropriate on the adjacent lands which do not have the specific preservation mandate of the National Park Service." (44 Fed. Reg. 47,413 (1979)).

The Park Service appears not have heeded the intent of the Executive Orders or applicable regulations regarding monitoring of ORV impacts and subsequent amendment of park ORV policy. In *National Wildlife Federation v. Morton* (393 F. Supp. 1286 (1975)), the D.C. District Court held that "wholesale blanket designation of 'open lands'" for ORV (including snowmobile) use, violated the express requirements of Executive Order 11644". In designating all Yellowstone park roads open for snowmobile use without fulfilling the criteria required by EO 11644, the Park Service has violated the intent of the Executive Order. Blanket designations of "open" do not follow the intent of the EO, which requires that all designations, whether open or closed, be based upon the criteria set out in the EO. As noted nearly thirty years ago by the Court, an open designation by the Park Service

changes the character of the land use policy, tilting it in favor of ORV use. Future designations will not be made in the context of applying the required criteria to decide whether specific areas and trails should be opened or closed to ORV use. Instead, authorized officers will be required to employ the criteria in determining whether a specific area of trail's existing "open" status should be changed to "closed" or "restricted". This distinction creates a subtle, but nevertheless real, inertial presumption in favor of ORV use. (*National Wildlife Federation v. Morton* (393 F. Supp. 1286 (1975)).

This is precisely the situation in which Yellowstone finds itself, following an arbitrary opening of all park roads to snowmobile use without following the intent of the Executive Orders or related regulations.

E. Park Management Policies

In addition to its regulations, the Park Service has adopted policies guiding its management of natural resources, air quality, noise, recreational activities, and other features of the National Parks (USD1 1988).

The primary objective of these policies is to manage natural resources to provide "the American people with the opportunity to enjoy and benefit from natural environments evolving through natural processes minimally influenced by human actions." *Id.* at 4:1. Thus, natural resources will be managed with a concern for "fundamental ecological processes.," *id.* (emphasis added), and Park managers will "try to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and ecological integrity of the plants and animals." *Id.* (Emphasis added).

Moreover, Park Service policies require that recreational use of parks be managed "so as to protect park resources, provide for public enjoyment, promote public safety, and minimize conflicts with other visitor activities and park users." *Id.* at 8:2. In particular, Park policy specifies that, unless a recreational activity is mandated by statute, the Park Service will not permit such activities if they would result in:

1. Inconsistency with the park's enabling legislation or proclamation, or be in derogation of the values or purposes for which the park was established;
2. Unacceptable impacts on visitor enjoyment due to interference or conflict with other visitor use activities;
3. Consumptive use of park resources;
4. Unacceptable impacts on park resources or natural processes;
5. Unacceptable levels of danger to the welfare or safety of the public, including participants. *Id.* at 8:3. (emphasis added).

As for snowmobiling, Park policy dictates that snowmobile use may be permitted in National Parks only on designated routes and water surfaces "in locations where there will be no significant adverse impacts on the park's natural, cultural, or scenic resources and values and in consideration of other visitor uses." *Id.* at 8:5.

The NPS revised its snowmobile regulations in 1979 (44Fed Reg 47,412). In an abrupt and complete reversal of its previous reliance on EO 11644 in designating snowmobile routes, the NPS declared that the restrictions of EO 11644 do not apply to the vast majority of snowmobile use in national parks. The NPS accomplished this result simply by re-defining most snowmobile use as not entailing ORV use. Specifically, the revised regulation states that: "Off-road vehicle use is not regarded as an appropriate use in the National Park System. Therefore snowmobiles will generally be permitted to operate on those established roads and on frozen waterways where other motor powered vehicles are allowed at other times. In those very limited places where off-road use of snowmobiles is permitted through Special Regulation, the provisions of EO 11644 and 11989 will be enforced."

Clearly, this new interpretation was designed to avoid compliance with the monitoring and mandatory closure provisions of EO 11644, as amended, by arbitrarily determining that snowmobiles are not ORVs when used on established roadways covered with snow. This is an

inaccurate interpretation of the definition of an off-road vehicle in the EO. Contrary to the NPS interpretation, the definition of ORV in the EO is not intended to apply to where the vehicle is used, but rather, simply refers to a "a category of vehicle capable of cross-county travel on or immediately over land...snow...or other natural terrain." *Id.* at §2(3). This definition clearly applies to snowmobiles in the national parks.

Once again, if the provisions of EO 11644, as amended, applied to snowmobiling in Yellowstone National Park, as they clearly should, snowmobile use could absolutely not continue due to its impacts on wildlife, wildlife habitat, and adverse effects on the natural values of park.

VII. Grand Teton National Park

GYC supports many of the preferred alternative's actions for Grand Teton National Park. The closure of the Potholes area is long overdue to be made official, and snowmobiles should be phased out on Jackson Lake. Closure of all inner loop areas to motorized use will have significant benefits for the park. The proposed actions for the Continental Divide Snowmobile Trail (CDST), however, are extremely problematic and counter to current NPS regulation. The preferred alternative proposes to "separate auto use from snowmachine use by moving CDST to a new pathway between Moran and Flagg Ranch." (DEIS, Table S-1).

Such a proposal to move a motorized trail off-road in a national park would require rulemaking to alter regulations promulgated following Executive Orders 11644 and 11989. NPS regulations state that "Off-road vehicle use is not regarded as an appropriate use in the National Park System. Therefore snowmobiles will generally be permitted to operate on those established roads and on frozen waterways where other motor powered vehicles are allowed at other times. In those very limited places where off-road use of snowmobiles is permitted through Special Regulation, the provisions of EO 11644 and 11989 will be enforced." (44 Fed. Reg. 47412).

Following these regulations, in order to relocate the CDST outside of the existing road corridor, Grand Teton National Park would have to draft special regulations to allow off-road snowmobile use. In so doing, Grand Teton would become the first park to allow off-road snowmobile use, setting a dangerous precedent. Such a proposal appears inexplicable given existing laws and regulations which are designed to protect the park's resources.

VIII. Cooperator Process

The use of local and state cooperators in the draft EIS was an abuse of that process and was an attempt to inject state and local authority over what by law and regulation must remain a federal decision. It became a process of political intimidation which weakened this NEPA effort.

NEPA provisions regarding cooperating agencies are clear: cooperators are those agencies that have jurisdiction by law or special expertise, and are intended to assist the lead agency in analyzing impacts and providing data. The purpose of including cooperating agencies is to increase the efficiency of the process, maximize coordination and cooperation, disclose

impacts and eliminate duplication. Decision-making authority is retained by the lead federal agency, in this case, the National Park Service.

The Memorandums of Understanding (MOU) signed by state, local and other federal agencies designated responsibilities of the NPS, as the lead agency, and the cooperators. They also delineated the cooperators' specific areas of expertise, in this case, primarily socio-economic impacts.

From the very beginning, local and state cooperators attempted to assert themselves as decision-makers in this EIS process. GYC staff attended several cooperators meetings, received and commented on draft MOUs. We repeatedly raised concerns about the inconsistent and inappropriate role of the cooperators. These concerns included attempts by the cooperators to gain decision-making status; the expansion by cooperators into areas in which they do not have recognized expertise under the MOUs; including members of a private group as cooperator representatives; allowing irrelevant discussions about changing the Organic Act, and discussions regarding motorized uses of areas currently recommended for Wilderness.

We also vehemently object to a provision in the MOUs prohibiting the release of working documents outside a Freedom of Information request or similar state process. State and local cooperators are all participating as elected representatives. All documents available to the cooperators should and must be made available to the public. The NPS cannot prohibit elected officials from sharing public records. We object to the retention of this provision, and suggest it cannot be enforced.

Obviously, the cooperating agencies do not have an accurate understanding of cooperating agency status. The NPS did not clearly establish and follow the conditions under which cooperating agency involvement can occur. Far from improving the efficiency of the process and maximizing coordination and cooperation, this NEPA process has become contentious, exclusionary, and biased toward special interests (the local business communities) because of the local and state cooperating agency involvement.

If this precedent-setting arrangement is to continue effectively, efficiently and within the bounds of current statutes and regulations, the NPS must indicate clearly and concisely what those conditions are. The NPS must make it clear that it will solely retain decision-making authority in this winter use planning effort.

IX. Economics

National parks are not islands, and as a result, changes in park management will have implication, both positive and negative, for persons who work, recreate, and live in or near Yellowstone National Park. NPS policy imposes a mandatory duty on the NPS to "anticipate, avoid, and resolve potential conflicts" with others "to protect park resources, and to address mutual interests in the quality of life for community residents, considering economic development as well as resource and environmental protections." (Policies at 2:9) However, the parks must not feel pressured to permit snowmobiling based solely on the economic benefit to local communities. NPS policy dictates that such alleged "beneficial effects" must be consistent with overarching "policies and management objectives". (Policies at 2:9-10).

Much of the protest to any reduction in snowmobiling by the gateway communities is focused on potential economic impact. In some cases, the counties have suggested very extreme scenarios, like the complete elimination of all snowmobiling on public lands or all park winter use, to illustrate impacts. In fact, snowmobiling will not be completely eliminated, even if it not allowed within the parks. And winter use of the parks is not proposed to be prohibited. As other information in these comments notes, there are thousands of miles of snowmobile trails within the three-state region, outside the parks.

It is difficult to predict how visitors might respond to the closure of the parks to snowmobiling. Certainly, people will continue to come, and there is the possibility the same numbers of people will come, but simply use the snowcoaches rather than snowmobiles. This is particularly the case if the parks make a concerted effort to make snowcoach travel affordable, comfortable and enjoyable. It is also possible that equivalent numbers of snowmobilers will come to the region, and will spend similar amounts of time in the region, visit Yellowstone National Park in snowcoaches. Other winter users may also still come to the region, and may come in even greater numbers as user conflicts are reduced.

According to the 1999 survey of visitors on both park and national forest lands, over half (52%) the park visitors snowmobiled or skied in places other than Yellowstone National Park during their visit; 64% of these did so for two or more days - primarily in Gallatin County. This is down from 62% of park visitors who recreated outside the parks according to a 1996 survey. Forest recreationists spent an average of 15% more per trip compared to park visitors, and 34% more per trip within the GYE than park visitors. In addition, forest recreationists spent twice as many days snowmobiling and cross-country skiing than park visitors, there were more repeat visitors to the GYE among the national forest recreationists, and they spent most of their time on the national forests. This would suggest that gateway communities are underestimating the economic impact of national forest visitors.

A reduction in snowmobiler visitor numbers or a shift in visitation patterns is also possible. The possible reduction or shift, however, is not the responsibility of the parks. The parks' responsibility is to ensure that the resources are protected, and to allow visitation in a manner that does not compromise those resources. That protection has not occurred and resources have been compromised, as noted elsewhere in these comments.

The economic impact of snowmobiling to local economies appears to have been overstated in many of the studies completed by cooperating counties. For example, Yellowstone Park visitation figures indicate that only 3 percent of winter visitors came through the East entrance. The actual number has been declining, and last winter was just under 3,000. A 1999 report titled *The Economic Importance of the Winter Season to Park County, WY* estimates the economic impacts of a prohibition on winter visitation, something which has not been proposed in any alternative. Interestingly, in the 1999 survey of park and national forest visitors, the use of Shoshone National Forest and other sites to the east were not even mentioned as locations for their recreation by park visitors who snowmobiled or skied in areas other than the park during their visit. According to the 1999 visitor survey, if the roads were closed entirely on the east side of the park, the largest proportion of both national forest and national park visitors said they

would not change their number of visits, and between five and eleven percent said they would increase their visits. Even under a road closure for the east side and snowcoach-only recreational motorized access as proposed in the Citizens' Solution, there is no prohibition on winter recreation, and certainly, Park County businesses would continue to receive revenues from park visitors.

The 1999 survey also provides data on visitation patterns for winter recreationists which suggests counties may have other challenges in meeting recreationists' needs. For example, only 29% of Yellowstone National Park visitors also stopped in Livingston, and 64% visited Gardiner. They spent almost as many nights in Bozeman - 80 miles away by highway - as in Gardiner - five miles away - and more nights in Big Sky and West Yellowstone than in Livingston. Park County, Montana, communities are for some reason not currently appealing to these visitors. According to a Yellowstone National Park list of businesses permitted to provide specialized winter services in Yellowstone, no Park County businesses are permitted to provide guided skiing, snowcoach, or snowmobile services, which may be a factor. Bozeman, on the other hand, hosts five guided skiing businesses, and West Yellowstone is home to four of the five snowcoach permittees and seven of the 21 snowmobiling permittees. Lack of diversity may be a factor affecting economic returns for certain gateway community businesses, and could be addressed by these businesses as a way to meet the challenges of snowmobiling prohibited in the parks.

X. Public and park values

The Citizens' Solution proposes to restore the natural winter character to Yellowstone and Grand Teton national parks. This position is supported by various surveys of public attitudes as well as by a review of the specific values of Yellowstone and Grand Teton national parks as ecological baselines.

A. Public values and attitudes

Most of the surveys referenced here were of park visitors, while one included an opportunistic survey of visitors on adjacent national forests. Consequently, these surveys provide a woefully incomplete reflection of how the national or even the regional public feels about visitor use of these two national parks. (The DEIS, p.90, mentions there is at least one incomplete survey that targets people outside park boundaries). It should be acknowledged that the current surveys are generally heavily biased by their focus on existing winter and snowmobiling visitors. Obviously, if a survey is limited to park visitors, and 60% of those visitors snowmobile in the park, results are going to be heavily weighted to that snowmobiling viewpoint, particularly on questions about whether snowmobiles should be eliminated.

The surveys ignore the people who are no longer visiting the parks, perhaps because of negative impressions and experiences. A variety of these dissatisfied winter visitors testified at the DEIS public hearings. See also, for example, the Teton County, Wyoming, survey, noted below, where a greater percentage of non-visitors felt snowmobiles had a negative impact on the park than visitors. We have attempted to highlight some of the survey findings, keeping this bias in mind.

There is certainly broad recognition of snowmobile impacts, and support for changing existing uses. See, for example, the survey of Teton County, Wyoming, residents, some of whom had not visited either Yellowstone or Grand Teton National Park in the last year. In that survey, 52% of YNP visitors and 56% of nonvisitors felt snowmobiles negatively impact Yellowstone in the winter. Of these, 66% felt they are too noisy, 44% believed they affect air quality, and 39% felt they disturb wildlife.²⁷ In addition, 51% of YNP users and 61% of non-users felt snowmobiles should be limited.²⁸

The Teton County Public Opinion Survey provides some indication of the dissatisfaction among residents with the heavy snowmobile emphasis in Yellowstone National Park, and the split among local visitors and nonvisitors. While only about 14% of the respondents who had not visited Yellowstone in the last year mentioned that one of the things they liked about the park was snowmobiling, more than one in three mentioned something they did not like which was associated with snowmobiling, including snowmobiling itself, snowmobile traffic, snowmobile noise, snowmobile air pollution and crowding. Even for those who had visited Yellowstone National Park in the last year, more respondents mentioned disliking something about snowmobiling than mentioned liking snowmobiling (44% vs. 38%).²⁹

The results for Grand Teton National Park are even less supportive of snowmobiling. Less than 4% of people who had not visited Grand Teton in the last year specifically mentioned liking snowmobiling, compared to about 10% of park visitors.

According to a 1998-9 winter visitor survey³⁰, while there is support for continued mechanized winter access to Yellowstone, there is less support among residents than nonresidents: Less than 60% of park visitors from the GYE support continued mechanized access.³¹ This suggests that residents may feel less tolerant of the use of the parks as a snowmobile playground, particularly if they have visited Yellowstone. As the DEIS notes on p.91, the 1999 winter visitor survey showed that 39% of in-region winter visitors favor either ski and snowshoe only, or ski, snowshoe and snowcoach access.

Although visitors said that the desire for tranquility, solitude, peace and quiet, and to get away from crowds are all relatively very important with respect to their visit to Yellowstone, they also said that they were fairly dissatisfied what the park offered in these areas.³¹ A 1996 survey found that visitors placed similar importance on quiet and solitude: 69% said quiet was extremely or very important; 67% said solitude was extremely or very important.³² These objectives are not being met under current uses with the predominance of loud, polluting snowmachines.

²⁷ Teton County Public Opinion Survey Report, Sept., 1998, Morey and Associates, p.10.

²⁸ Ibid, p.11.

²⁹ Teton County Public Opinion Survey Report, Sept., 1998, Morey and Associates, p.10.

³⁰ Duffield and Hcher, September, 1999 draft report, Winter 1998-99 Visitor survey, YNP, GTNP, and the GYA: Analysis and Results, pp. 31-34.

³¹ 1999 report on Jan-Mar 1998 Borrie and Fricmund survey of winter visitors, pp. 52-53.

³² 1996 survey

B. Park Wilderness

In 1973, the NPS endorsed wilderness designation in order to provide the natural, near-pristine environment mandated for Yellowstone.³³ The analysis of the wilderness proposal stated that such a designation would allow visitors a primitive experience in one of the largest wilderness areas in the lower 48 states. "(T)he sense of solitude and quiet that typifies this region will remain always available to those willing to take the necessary time and effort."³⁴

It also stated that the wilderness designation would "retain the primeval character of the area and provide an enduring resource of wilderness, assured of protection from the probability of administrative decisions."³⁵ The NPS recognized that it would face pressures to develop Yellowstone National Park in ways that would threaten the natural environment, and knew that wilderness designation would, or at least should, prevent some of those developments from occurring. It anticipated forever excluding the intrusion of the sounds of vehicles "and other cacophony of man's modern world."³⁶ Rather than look at it as a detriment, the NPS felt wilderness designation offered invaluable scientific and educational opportunities as the visitors are exposed to this wilderness and to the chance to relate themselves to their environment. These included the mental and physical challenges of wilderness and the respite offered as an escape from the stress-provoking conditions of daily life.

The 1973 master plan for Yellowstone National Park puts the issue another way that still has pertinence today: "Challenge in some degree is a fundamental ingredient of a wilderness experience. . . . The visitor must be made to see that if Yellowstone's unique wilderness essence is to survive, he must be willing to accept nature on her own terms, rather than his own . . ." (p.25). While the Master Plan acknowledged the 'rapidly emerging phenomenon of winter use,' it too, failed to recognize the conflict between snowmobiling and the quality of the wilderness experience. We advocate reducing and eliminating outside sights and sound in wilderness and potential wilderness. Congress has clearly stated in the 1978 Endangered Wilderness Act, however, that outside sights and sounds should never be used as criteria to preclude an area from wilderness.

The Yellowstone National Park wilderness recommendation proposed ten roadless areas totaling over 2 million acres, over 90% of the park area. Wilderness designation was supported by 90% of the individuals, organizations and agencies that commented on the proposal, and 78% overall supported more wilderness than the NPS had originally suggested. The 1988 NPS Management Policies state that wilderness management policies apply to categories of designated wilderness, potential wilderness and recommended/study wilderness, and these policies apply regardless of category.

³³ See Final Environmental Statement, Proposed Wilderness Classification, YNP, WY, NPS/USDOI, 1973, and Wilderness Recommendation, YNP, USDOI/NPS, 1972.

³⁴ Final Environmental Statement, Proposed Wilderness Classification, YNP, WY, NPS/USDOI, 1973, p.4.

³⁵ *Ibid.*, p.14.

³⁶ *Ibid.*

The environmental assessment for the proposed snowmobile closure within the core of Denali National Park stated that among the potentially damaging effects of snowmobiles are: diminished wilderness values, including natural quiet, solitude, and undisturbed vistas that are the foundation of the experience for the historic winter users of the park. It is time for the managers of Yellowstone and Grand Teton national parks to similarly acknowledge the damaging effects of snowmobiling on those parks' wilderness experience, natural quiet and solitude, and take action to remove those impacts.

C. The Winter Use Planning Process

This EIS and winter use decision is long overdue. The potential impacts of snowmobile use was recognized almost 30 years ago, but have been allowed to continue unabated since then. The 1972 FES on the Proposed Wilderness Classification for YNP noted that because of the significant increase in oversnow machine use in the park, almost doubling in three years, an interdisciplinary research program was being planned at the Yellowstone Environmental Study Center, a cooperative research unity between the NPS and the University of Wyoming. One of the main concerns noted then was the effect of snowmobile use on the wildlife populations, especially elk, deer, moose and buffalo, in their previously undisturbed winter range. Virtually nothing has been done since then to measure or stop those impacts.

D. Snowmobiles

Yellowstone National Park began grooming roads as a way to keep snowmobilers from traveling cross-country as roads became bumpy from use, and subsequently hazing or chasing animals. Other parks, however, have banned snowmobiling, and continue to ban them and Yellowstone and Grand Teton national parks need to follow their lead.

The Denali example

Currently, two million acres within the core of Denali National Park is under judicial review for re-instatement of a snowmobile ban. The reasons for the ban are similar to those in Yellowstone. According to Bob Barbee, NPS Alaska Regional Director, and former superintendent of Yellowstone National Park, "Keeping this portion of Denali closed to snowmobiles would prevent detriment to the inherent resource values, including wildlife and wilderness, and would provide opportunities for solitude and non-motorized winter activities." Among the potentially damaging effects of snowmobiles cited in the draft environmental assessment for Denali are:

- The degradation of pristine air and water quality which currently exist within the core of Denali. The harm would be due to dirty exhaust emissions from two-stroke engines, the deposition of emissions in the snowpack, and alteration of the water chemistry of streams and rivers due to unburned hydrocarbons from incomplete fuel combustion.
- Damage to vulnerable soils and vegetation.
- Changes in animal behavior, including abandonment of preferred habitat and distribution pattern changes.
- User conflicts between snowmobile users and non-motorized recreationists such as cross-country skiers.
- Diminished wilderness values, including natural quiet, solitude, and undisturbed vistas that are the foundation of the experience for the historic winter users of the park.

The Denali snowmobiling closure notice stated that it was being done to prevent harm to park wildlife, wilderness, and other values.³⁷ That closure, which was effective immediately, is in place for twelve months while the NPS issues draft regulations regarding snowmobiles and other Denali activities. It allows the NPS to meet its legal obligations to make sure that any new activity or any changes in the level of existing activities will not have a detrimental effect on resource values that are to be protected for future generations. According to Denali Superintendent Steve Martin, "This action prevents harm to park values, including wildlife, wilderness and other natural resources, opportunities for quiet and solitude and the undisturbed conduct of non-motorized activities...The possibility of extensive and expanding snowmobile use in Denali presented a threat to one of the most important ecosystems and wilderness resources on earth. We've seen that snowmobile users can quickly move into new areas and reach a high density. The potential for such rapid change places extremely important resources, such as caribou, bears, wolves and the prey they depend on, at risk."

There are similar values in Yellowstone and Grand Teton. Snowmobiles should be removed from these parks.

1. Public safety

As previously stated, according to the Park Service 1988 Management Policies, unless an activity is mandated by statute, the Park Service will not allow a recreational activity in a park or in certain locations within a park if it would involve or result in "unacceptable levels of danger to the welfare or safety of the public, including participants." (Policy at 8:3).

The Park Service is thereby required to make the park experience a safe one. Indeed, "the saving of human life take[s] precedence over all other management actions." (USDI 1988 at 8:5). Many park regulations (i.e., speed limits, prohibitions on feeding wildlife) are designed to promote safety. These regulations are enhanced by educational campaigns conducted to remind park visitors that National Parks are not amusement parks, and that care must be taken to avoid injury.

Unfortunately, snowmobiles remain incredibly dangerous machines. Despite the promulgation of regulations establishing speed limits and requiring driver licenses for snowmobile operation, requiring licenses, snowmobile safety statistics for the past several years paint an alarming picture. For example, snowmobile accidents in Yellowstone increased 61% from 1988-1995. Over the last five winters, 535 people were killed on snowmobiles in the upper Midwest. In 1998, 32 people died in Minnesota alone. Nationally, 15,000 people were sent to the hospital for snowmobile related injuries. In Yellowstone over the last three years, snowmobiles were involved in 67% of park-wide motor vehicle accidents despite representing less than five percent of all motorized vehicles using the Park.

A recent study in Alaska by Dr. Michael G. Landen of New Mexico State University found that people who snowmobile frequently are almost nine times more likely to suffer death or injury in accidents than automobile drivers. (See, "Snowmobiles Pose Fatal Risks, United

Press International, January 11, 1999). In northern Alaska, snowmobiles are the leading cause of death. Landen's report confirms that snowmobiles cause an extremely disproportionate number of casualties, especially because on-road vehicles are driven an estimated 53 times as many miles as snowmobiles in Alaska. Moreover, Dr. Landen discovered that sixty-five percent of Alaskans killed in snowmobile accidents were intoxicated and fifty-eight percent of the deaths involved hitting a natural object, such as a boulder or river.

Excessive speed is responsible for many snowmobile accidents. The top speed of several new models exceeds 100 MPH, and the horsepower and acceleration of some models exceeds that of many automobiles. Horsepower to weight ratios are equal to or higher than any other class of motorized vehicles manufactured today.

Excessive horsepower leads to reckless operation. Snowmobile operators are often observed traveling dangerously fast on narrow trails despite numerous obstructions and obstructed visibility. High speed collisions with fixed objects is the leading cause of accidents, with head injuries the leading cause of death. Improbably, drowning is the second leading cause of death.

A study by the Mayo Clinic in Minnesota documented an increasing number of severely injured snowmobilers in the last several years (Farley et al., 1996). Of the 42 patients admitted to the clinic due to snowmobile accidents from January 1, 1991 to May 1, 1993, 38 were men and 4 were women. Nearly 90 percent of the accident victims were younger than 40 years, less than 50 percent were wearing helmets at the time of the injury, and many were drinking. The injuries sustained included bone fractures, blunt abdominal trauma, closed head injury, lacerations, hypothermia, and frostbite. Complications, particularly due to infection, occurred in many patients. Though only one of these patients died as a result of the snowmobile injuries, the medical and emotional costs of healing the wounded was excessive.

Yellowstone experiences many snowmobile accidents each year. During the 1997/98 snowmobile season there were a total of 41 snowmobile accidents in Yellowstone. The causes of these and past accidents include excessive speed, collision with other snowmobiles, reckless driving, driving while intoxicated, collision with trees, and collisions with animals, including Yellowstone bison. The costs to the park resulting from snowmobile use is large, and personnel requirements considerable.

In Yellowstone, for example, Ms. Lucie Hanusova, a world champion caliber skier from the University of Colorado, was killed in the park during early January 1999 when she lost control of her snowmobile and it struck a tree. ("Snowmobiler Dies After Hitting Tree," Bozeman Daily Chronicle, 1/12/99). Excessive speed, however, was not a factor in this accident. According to an accident report prepared by Yellowstone rangers, the snowmobiler failed to correct a drift in course, left the park road at modest speed and struck a tree. We believe that in similar types of accidents, the extremely high levels of Carbon Monoxide (CO) discharged by snowmobiles impairs the operator's ability to control the vehicle, and may therefore be responsible for many injuries and deaths nationally.

³⁷ NATIONAL PARK SERVICE MORNING REPORT To All National Park Service Areas and Offices From: Division of Ranger Activities, Washington Office, John Quinley, PIO, ARO, 2/4, February 5, 1999.

Considering the documented danger of snowmobiles and park policy which emphasizes the protection of humans using National Parks, a ban on these machines as requested in this petition is both of significant benefit to the ecology of the park and to public safety. There are significant concerns about snowmobile safety which also suggest that such machines are inappropriate for Yellowstone National Park. According to the DEIS, about 70% of all park visitors use rented snowmobiles, and 85% of the snowmobiles involved in motor vehicle accidents were rented. Snowmobiles involve a greater proportion of incidences requiring ranger assistance than their visitation constitutes: they were involved in 243, or 94% of, accidents, compared to 61% of overall winter use over the last three winters (p.97). Eighty-five percent of citations were issued to snowmobilers during that period (p.101), primarily for speeding. Loss of control was a major factor. Snowcoaches, meanwhile, were involved in six accidents, or 2% of accidents compared to 10% of overall use.

The DEIS, p. 100, also notes that 5% of snowmobile accidents from 1995-1999 involved visitors between 10-15 yrs. of age. Since only licensed drivers are allowed to drive a snowmobile in Yellowstone, these youth are likely coming in as passengers, and then being allowed to drive the snowmobile once inside the park. The safety of visitors and park staff who must assist these visitors is of concern. Visitor access in the parks must be the safest possible, both for visitors and for staff responsible for visitor health and safety. The human and financial resources required to support snowmobiling in the park, and its concomitant risks, places a significant burden on park personnel, available resources and budgets.

E. Access

One of the objectives of the Citizens' Solution is to restore the natural winter environment, while providing appropriate recreational access to the parks in winter in a way compatible with the wildland nature of Yellowstone and Grand Teton. The Citizens' Solution would meet this objective by providing over-snow access by snowcoaches only. Similar group transportation systems are already in place in Denali National Park and will be soon in Grand Canyon, Yosemite, and Zion National Parks. Such a system should be established in Yellowstone as well. It will result in far less vehicle miles traveled and consequently far fewer impacts with wildlife. Administrative access via snowmobile would be allowed.

If one assumes, under our snowcoach alternative that there is a snowcoach every five minutes with about 12 people per snowcoach, a maximum of about 1400 people could be accommodated daily. This contrasts with the current level of 1500 snowmobile visitors daily (on about 1200 snowmobiles). It is likely that a five minute headway is not sufficient to maintain quiet and prevent crowding, therefore fewer snowcoaches, and fewer visitors, may be accommodated.

This same assumption would result in a maximum of about 120 snowcoach trips per day; 120 round trips of 60 miles between West Yellowstone and Old Faithful results in 7200 vehicle miles traveled in a day along this route, compared with 72,000 snowmobile miles under current conditions, a 90% reduction in vehicle miles traveled along this route, while providing access for the same number of visitors.

GYC also believes that improved snowcoach travel can provide much better opportunities for certain segments of society that currently visit the park in winter in very low numbers, and for group travel. Currently, most Yellowstone National Park winter visitors are male; just over one-third of Yellowstone and Grand Teton visitors are in family groups; and groups of six or more comprised 37% of Yellowstone visitors.^{38,39} This is consistent with earlier surveys that found that only about 8-10% of visitor groups included children, and there was a similarly relatively small number of older visitors.⁴⁰

F. Carrying Capacity, Facilities and Services

The Citizens' Solution proposes that a carrying capacity for winter visitor levels be developed for winter use in Yellowstone and Grand Teton National Parks. In the meantime, GYC supports limiting winter recreational use to no more than the average visitation over the last six years. The Citizens' Solution does not support any expansion of winter services or facilities, and anticipates that with the implementation of group transportation, some facilities such as fuel dumps may no longer be needed and could be removed.

Under the Citizens' Solution, the capacity of the snowcoaches will likely determine overall winter use capacities, which could be about 1400-1800 people per day (see above discussion). While there are limited overnight accommodations at Old Faithful (222 beds/136 rooms), day use is not limited. Winter parking capacity at Old Faithful is driven in large part by the 150 parking spaces, which provide more space than that at Flagg Ranch. The development of the new sewage plant at Old Faithful, the area which experiences the heaviest use in the park, is expected to easily accommodate the 1400-1800 people per day level of use, so does not appear to be a limiting factor. Consequently, the capacity of snowcoaches to safely transport people would have the greatest impact on winter visitor numbers.

The NPS is required to address carrying capacity in parks. This obligation is a recognition that the NPS is faced with goals in conflict -- that of protecting the resource, while also providing for visitor access. GYC feels strongly that the goal of protection must constrain that of access, but need not eliminate access. The challenge is to determine what recreational access can be accommodated while maintaining those resource conditions.

Yellowstone and Grand Teton national parks intend to use the Visitor Experience and Resource Protection (VERP) planning process for determining carrying capacity, a public process adopted by the NPS for system-wide use. It has been used in Arches National Park. It is our understanding that the VERP process may result in a separate winter visitor management plan, or an amendment to the existing plan. The current winter use plan and decision will constrain options considered through the VERP process, as will other decisions, such as the commercial services plan.

The VERP process defines visitor carrying capacity as the type and level of visitor use that can be accommodated while sustaining the desired conditions for resources and the quality

³⁸ DEIS, p. 91

³⁹ 1999 survey

⁴⁰ 1996 survey (done in 1995), p. 6. Bath, pp. 99, 103.

of visitor experience that meet park purposes. It also includes developing indicators and standards to ensure resource protection and provision of the desired visitor experience; monitoring and identifying variations from desired conditions; and taking management actions to achieve the desired condition.

While it would have been more efficient to have completed the VERP process prior to this winter use plan, the fact is that the NPS has allowed winter use, and snowmobiling in particular, to escalate far beyond its ability to ensure resource protection. Past responses to increasing visitation have often tended to take actions such as to harden sites and increase facility capacities and infrastructure. Yet significant impacts are occurring, and as the VERP handbook (as well as common sense) advises, it is better to take action to protect resources than to do nothing because of incomplete information. That necessary action, we firmly believe, is to eliminate snowmobiling from the parks and provide for more appropriate motorized recreational access through snowcoaches. The subsequent VERP process should be based on this foundation.

As additional support for this position, we would like to point out that one requirement of VERP is to assess the diversity of experiences available throughout the region, and whether certain types of activities, or experiences, can only occur within the park. Clearly, snowmobiling opportunities are available on hundreds of miles of trails within the Greater Yellowstone region outside the parks, and thousands more miles of trails throughout the states of Montana, Wyoming and Idaho and beyond. A snowcoach opportunity, however, is unique and totally appropriate to Yellowstone and Grand Teton national parks. It should provide the opportunity - and the constraint - for the upcoming carrying capacity planning process.

There is, however, apparently no timeline for initiating this process at YNP and GTNP. Certainly, some of the surveys and research that have been conducted will provide important data. We urge the NPS to begin that process immediately, and in particular, to ensure that the necessary inventory of existing conditions is conducted in a timely manner.

G. Recreational Opportunities on Adjacent Lands

There are many opportunities for recreationists to enjoy winter both inside and outside the parks. According to the DEIS, Fremont County, ID, hosts 400 miles of regularly groomed snowmobile trails; 300,000 snowmobile user days/yr and 40,000 days of other winter recreation. Information from the GYCC indicates that the West Yellowstone area has about 160 miles of groomed trails, enjoyed by about 90,000 snowmobilers each year. Many of these snowmobilers never visit Yellowstone Park. The Targhee grooms up to 500 miles of trails, and has 140,000-150,000 snowmobile visits. The state of Wyoming maintains over 2,000 miles of snowmobile trails, with over 50% located within the Greater Yellowstone area. Increasing use is being felt elsewhere as well.

It is clear that in many areas outside the parks, snowmobiling is and will continue to be a prominent wintertime activity. There is little basis for the argument that snowmobiling must continue in the parks when so many opportunities for snowmobiling exist outside the parks and elsewhere within the three states and the rest of the region. Most important, the Parks must not hesitate to make a decision to eliminate snowmobiles based on concerns about increased pressure on adjacent lands. Snowmobile use on adjacent forest lands is already occurring at high levels, and the Forests must undertake winter use planning similar to the parks' effort.

XI. Conclusion

Our National Parks were not created in order to serve as national playgrounds, available for any and all uses. They were created to preserve "nature as it exists," H. Rep. No. 700, 64th Cong., 1st Sess. 3 (1916), affording the American people and people worldwide an unparalleled opportunity to see, hear and experience these national treasures in as natural a state as possible. There are more than enough areas, both on and off federal land, where snowmobiling can continue. But our unique and irreplaceable National Parks should not be among those areas. Therefore, we request that the Park Service craft a final preferred alternative which reflects the components of *The Citizens' Solution for Winter Access to Yellowstone*.

In keeping with the progressive vision of the National Park Service, Yellowstone and Grand Teton must formulate a means of visitor access which does not impair resources. A mass transit approach is the only solution. Two-stroke vehicles must be immediately eliminated from the parks, as their levels of pollution and noise are fundamentally at odds with park mandates and wholly inappropriate for use in the parks. Furthermore, individual recreational snowmobile use is inappropriate for use in the parks regardless of pollution levels. According to law and regulation, winter visitors may be provided access to the parks only by the most appropriate means available. Currently, snowcoaches represent that method. The challenges of increased winter visitation and concomitant impacts will not disappear. The parks must take proactive, preventive action and implement a group travel system which allows people to view the resources without impairing those same resources with their mode of access.

The Park Service must take a hard look at the effects of road-grooming on bison and other wildlife. The absence of any control studies of ungroomed road surfaces has done a disservice to the public debate and potentially further imperiled wildlife in winter. Data insufficiencies in the realms of air quality, water quality, noise and natural quiet must also be remedied. The park must establish baselines in order to monitor degradation. This Winter Use EIS is long overdue and insufficient in many respects. The Preferred Alternative will not address the litany of impacts the parks currently are degraded by. The Park Service must adopt a final preferred alternative which immediately fulfills the intention of park law, regulation and policy to preserve park resources in perpetuity.

GREATER YELLOWSTONE COALITION

Page 4. Re: Adaptive management is not a mechanism to put off or delay important decisions as the commenter suggests. Adaptive management is a process by which management actions are implemented based on the best available information and are tested as a hypothesis using an identified monitoring program. It is the nature of the decision that is in question. It has been the Park Service's intent from the beginning of the process to prepare a programmatic plan (§1508.18(b)(2) and (3)). This would be the purpose of preparing a "comprehensive EIS." There should have been no illusions that a plan of this magnitude would be based upon detailed, site-specific data in order to make every decision possible relating to winter use. This programmatic approach is acceptable under the law, in the way that NEPA is the vehicle for producing NPS General Management Plans and USFS Forest Plans, and amendments thereto. Such documents do, in fact, make decisions and allocations at a general level and defer many site-specific types of decisions to a later date. In this context, it is also acceptable to spell out processes that would be followed, such as adaptive management, as alternative features. It will be up to the decision-maker to weigh the available data, the possible impacts of such alternatives in the short term, and decide if park resources and values are sufficiently protected.

Page 4. Re: Guiding laws and regulations. NEPA (CEQ Regulations) does not stipulate the rationale for selecting a preferred alternative in an EIS. It stipulates that in a final EIS, a preferred alternative must be identified. The statement of preference for one or more alternatives in a draft EIS is discretionary, depending upon whether the agency has a preference at that point (§1502.14(e)). The identification of a preferred alternative in a DEIS should be regarded by the public as extremely tenuous. This is because an EIS is to serve as a means of assessing impacts of proposed agency actions "rather than justifying decisions already made" (§1502.2(g)). The FEIS preferred alternative may be viewed more as a "precursor" decision, which will only become final in a Record of Decision that expresses the rationale for the choice. In any case, it is clear that merely the expression of a preferred alternative, by itself, can in no way invalidate the entire EIS analysis. The decision maker can select any of the proffered alternatives in a Final EIS through consideration of a variety of factors, including but not limited to environmental impacts. The selected alternative does not have to be the most environmentally preferable alternative, which must also be revealed in the decision document.

Page 5 and 6, 7-9. Re: The Citizens' Solution for Winter Access to Yellowstone. The proposed "Citizens' Solution" is not significantly different from alternative G as presented in the DEIS, especially considering the programmatic nature of the proposed action. See the matrix comparison of "The Citizens' Solution" versus the features analyzed in the range of alternatives. This may be found in Chapter I of the FEIS under Alternatives Suggested During the Public Comment Period. All alternatives in the DEIS meet the purpose and need for action to a greater or lesser degree.

Page 9. Re: Failure to act immediately. There has as yet been no legal finding that snowmobiling violates any of the mandates described in the purpose and need section. Montana DEQ points out that there has been no actionable violation of Montana or Federal clean air standards. Where standards have been approached, West Entrance and Flagg Ranch, there clearly needs to be some action taken with respect to health and safety. Pollution levels throughout the park units do not approach this level. Class I air quality in the remainder of the park units has less to do with health standards and more to do with park values (visibility, odor) for which no specific standards exist. The eventual decision will, through a finding, provide direction on the issue of derogation of park values, and an appropriate implementation period will be selected.

Page 10. Re: Airborne toxins created by 2-stroke engines. That PAH and other toxic elements are included in emissions from 2-stroke engines is disclosed in the DEIS, page 163 et al. The information in the DEIS will be reviewed and enhanced as appropriate for the final document.

Page 10. There is no requirement in CEQ regulations (§1502.14) to justify a preferred alternative, just to name one or more alternatives as preferred in the DEIS if there is a preference. The agency must express a preferred alternative in a Final EIS. It appears many commenters place too much emphasis on the alternative designated as preferred in the DEIS. This designation is tenuous at best. Under the CEQ regulations, the requirement in an EIS is to provide a range of reasonable alternatives that clearly define the issues, and to fully evaluate and disclose the possible effects of those alternatives. The DEIS meets this requirement.

Pages 10-12. Re: Current air quality degradations within the parks warrant stronger action. Information provided on pages 10-12 of the letter relates to snowmobile emissions. Much of this information is either stated or cited in the DEIS. Due to work that has been ongoing since publication of the DEIS, air quality analysis in the FEIS will be updated.

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Pages 12-13. Re: Snowmobile emissions. Information provided on pages 12-13 of the letter relates to snowmobile emissions. Much of this information is either stated or cited in the DEIS. Due to work that has been ongoing since publication of the DEIS, air quality/public health analysis in the FEIS will be updated.
Pages 14-15. Re: Legal and policy requirements. Legal and policy discussion: NPS is fully cognizant of its mandate and policy requirements, as reflected in the purpose and need section of the DEIS. There has as yet been no legal finding that snowmobiling per se violates any of the mandates described in the purpose and need section. Montana DEQ points out that there has been no actionable violation of Montana or Federal clean air standards. Where standards have been approached, West Entrance and Flagg Ranch, there clearly needs to be some action taken with respect to health and safety. Pollution levels throughout the park units do not approach this level. Class I air quality in the remainder of the park units has less to do with health standards and more to do with park values (visibility, odor) for which no specific standards exist. The eventual decision will, through a finding, provide direction on the issue of derogation of park values, and an appropriate implementation period will be selected.
Page 15. Re: Citizens' Solution. The proposed "Citizens' Solution" is not significantly different from Alternative G as presented in the DEIS, especially considering the programmatic nature of the proposed action. See the matrix comparison of "The Citizens' Solution" versus the features analyzed in the range of alternatives. All alternatives in the DEIS meet the purpose and need for action to a greater or lesser degree.
Page 15. Re: NPS must mitigate or eliminate impacts to air quality from snowmobile use. Improved snowmachine technology and snowcoach, mass transit access are evaluated in the DEIS as possible alternatives to the current situation. Once again, the NPS solution will be articulated in a record of decision.
Page 16-17. Re: Effects of noise on wildlife. This issue will be reviewed and updated in the FEIS if necessary.
Page 17. Re: Approach to mitigating snowmobile noise. The analysis of sound will be updated in the FEIS.
Pages 17-18. Re: Policy requirements and data insufficiencies. The DEIS on page 126 and in Appendix C (Volume II) express policy requirements regarding natural quiet, as they relate to winter use issues.
Pages 18-19. Re: Failure to collect useful data on noise pollution in the parks. Additional data has been collected during the 1999-2000 winter season. Sound modeling has been conducted. Inadequacies pointed out in this comment are being addressed, and the analysis will be reflected in the FEIS.
Page 19. Re: The mode of access utilized by winter visitors must be the most quiet vehicle possible. This comment goes to the decision to be made. Commenter expresses how and why the decision <i>must</i> be made. This goes to the purpose and need for action and the decision to be made by NPS. The final strategy, or decision is based on selection criteria used by the decision maker, which are disclosed in the record of decision through discussion of "preferences among alternatives based on relevant factors and agency statutory missions" (§1505.2(b)).
Pages 19-23. Re: Impacts on water quality and aquatic resources. Impacts such as those detailed by commenter are summarized and cited in the DEIS, page 163 and subsequently for each alternative. An additional study not available for the DEIS has been completed and will be used in updating the analysis in the FEIS.
Page 23. Re: The use of snowmobiles and NPS mandates. The assertion that use of snowmobiles, because of perceived air and water impacts, violates the entire set of NPS mandates, executive orders and policies is a gross generalization. Such a finding has yet to be made relative to the three park units in question. Many places throughout this comment letter provide a restatement, or expansion, of literature summarized and cited in the EIS. The commenter extrapolates or generalizes from the literature to conclude that the activity in question conclusively demonstrates that the resources of the three park units are impaired beyond some legal limit. NPS maintains that the standard of impairment in most instances is a function of the criteria used by a decision-maker in the record of decision. The latter is a part of the decision to be made, based on relative effects between alternatives disclosed in the EIS.
Pages 23-26. Re: Impacts on water quality and aquatic resources. Impacts such as those detailed by commenter are summarized and cited in the DEIS, page 163 and subsequently for each alternative. An additional study not available for the DEIS has been completed and will be used in updating the analysis in the FEIS. Please see earlier response to this letter in regard to page 23 "Use of snowmobiles and NPS mandates."
Pages 27-30. Re: Impacts on wildlife. This comment is a restatement, or expansion, of literature summarized and cited in the EIS.

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Page 30. Re: Regulatory requirements to protect wildlife. The commenter extrapolates or generalizes from the literature to conclude that the activity in question conclusively demonstrates that the resources of the three park units are impaired beyond some legal limit. NPS maintains that the standard of impairment in most instances is a function of the criteria used by a decision maker in the record of decision. The latter is a part of the decision to be made, based on relative effects between alternatives disclosed in the EIS and consideration of regulatory requirements.
Pages 30-32. Re: Impacts on wildlife. This comment is a restatement, or expansion, of literature summarized and cited in the EIS.
Page 33. Re: Impacts on individual animals and populations. These impacts are disclosed in the DEIS, pages 165-167, and subsequently for each alternative.
Page 33. Re: Winter road grooming impacts on bison and wildlife. These impacts are disclosed in the DEIS, pages 165-167, and subsequently for each alternative on pages 183, 209, 231, 250, 265, 281, and 291.
Page 34. Re: Recommendation for NPS to use road closures as an assessment tool. Assertion that “The Citizens’ Solution” is an interim plan which is amendable pending thorough examination and mitigation of issues impacts. This suggestion appears to be no different than the adaptive management process incorporated directly into two of the DEIS alternatives – B and E. It is an approach that remains a choice for the decision maker.
Page 34. Re: User conflict. NPS points out that the issues regarding existing versus desired condition, the basis of the purpose and need for action, includes visitor experience (nonmotorized users and user conflicts). Analysis of visitor experience issues is presented in the DEIS, pages 149-154, 174 and subsequently for each alternative. NPS feels that this analysis is sufficient to ascertain the effects of various alternatives on the park visitor, as support for a programmatic plan. To a degree, effects are quantified in terms of visitor opportunities for each alternative. The commenter notably does not suggest a more specific means for quantifying impacts of snowmobile use on other park users.
Page 34. Re: Recent user surveys. Survey summaries regarding this kind of information may be found on pages 149-154 of the DEIS. Recently completed survey results will be reflected in this section of the FEIS.
Page 34. Re: NPS regulations and policies. The assertion that use of snowmobiles, because of perceived impacts on other users, violates NPS mandates and policies over generalizes the true situation. Such a finding has yet to be made relative to the three park units in question. NPS maintains that the standard of impairment in most instances is a function of the criteria used by a decision-maker in the record of decision. The latter is a part of the decision to be made, based on relative effects between alternatives disclosed in the EIS.
Page 35. Re: The park service must implement an alternative that ensures that access to the park does not detract from other visitors’ experiences. This comment goes to the decision to be made. Commenter expresses how and why the decision <i>must</i> be made. This goes to the purpose and need for action and the decision to be made by NPS. The final strategy, or decision is based on selection criteria used by the decision maker, which are disclosed in the record of decision through discussion of “preferences among alternatives based on relevant factors and agency statutory missions” (§1505.2(b)).
Pages 35-44. Re: Legal and policy framework. Most of the discussion on these pages restates the information in the purpose and need section and Appendix C of the DEIS. The commenter uses this information to come to a conclusion that snowmobile use is, on its face, inconsistent with laws, executive orders and NPS policies. Commenter assumes on page 37 a level of documented adverse impacts that amounts to violation of law, etc. NPS maintains that such documentation is the purpose of an EIS: to analyze and disclose impacts of various alternatives, and to sharply define issues. NPS concludes that this comment is the rationale GYC would use in making a decision, as opposed to criticism on the adequacy of the EIS or the range of alternatives considered. Therefore, the comments on these pages go to the decision to be made, and requires no further response
Page 44. Re: Grand Teton and the CDST. No information is offered to exclude consideration of a separate CDST in Alternative B. This alternative feature is a possible alternative to the current situation which involves safety concerns, and it should be evaluated. Commenter appears to object because it is a feature in the preferred alternative. Should this feature be implemented, it is recognized that possible rule changes would be necessary, in addition to further NEPA and decision making on a site-specific level. These possibilities might discourage a decision maker, but they do not strictly prohibit the analysis of the option or its eventual selection.
Pages 44-45. Re: Cooperator process. The intent of granting cooperating agency status was in the spirit of cooperation and coordination consistent with

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NEPA, FACA and APA. The content of the document has been affected, but NPS disagrees that the analysis has been. The document incorporates material from the cooperating agencies, which is reported as a matter of full disclosure even though the results disagree with NPS analysis. Letters from the cooperators and the signed agreements between NPS and cooperators were included in the DEIS, Volume II. These items relate to content. As to inappropriate influence, one need only review media reports, comment letters or other correspondence from the cooperators to obtain their assessment of how they were involved. Regarding the commenters statement about NEPA provisions relating to cooperating agencies, NPS agrees.

Page 45. Re: Economics. The EIS presents a fair disclosure of impacts of winter use alternatives, including social and economic effects. Consideration of impacts and other factors is in the purview of the decision maker, who will select an alternative and provide rationale for that selection in a record of decision.

Page 47. Re: Public values and attitudes. The discussion of surveys in the DEIS is clear about the winter use survey methods, sampling, and participation. Survey results and conclusions have not been represented in any way that is inconsistent with this. Additional surveys have been completed and are available for incorporation into the FEIS analysis.